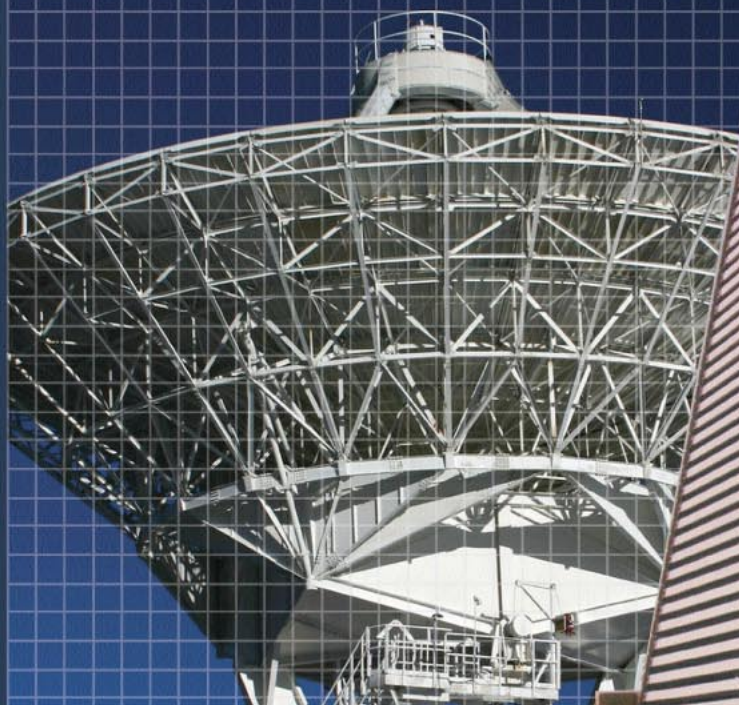


MICROWAVE & RF POWER PRODUCTS



A Single Source for Microwave and RF Power Products

This catalog provides the combined offerings of the Microsemi Microwave Products operation in Lowell, Massachusetts, and of the RF Power Products operation located in Bend, Oregon, and Santa Clara, California. Information on both product lines is available on the Microsemi website: www.microsemi.com. Contact the appropriate organization directly for sales and technical assistance:

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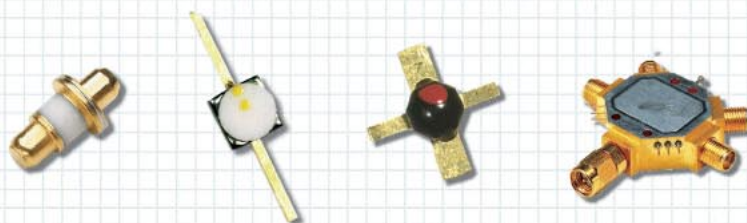
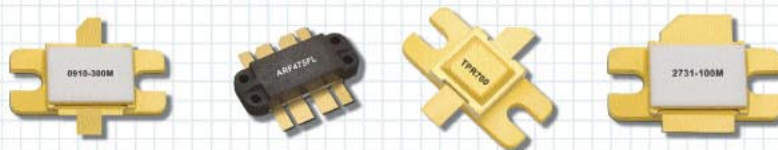


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About Microsemi Microwave Products

Microsemi's Microwave Products operation, located in Lowell, Massachusetts, brings nearly 30 years experience in manufacturing high reliability RF and microwave PIN and limiter diodes, tuning and multiplier varactors, noise diodes, Schottky-barrier diodes, MNS chip capacitors and solid state control modules. Frequencies range from 100 Hz through millimeter wave.



With high volume wafer fabrication now in place to meet the competitive needs of our growing commercial customer base, **Microsemi's** Lowell facility can deliver more cost-effective components faster than ever for our longstanding military customers as well.

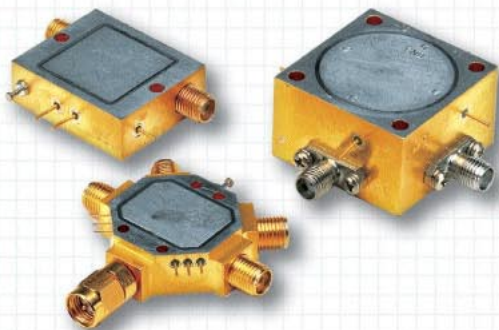
From our closely controlled RF/microwave diode inventory we can match characteristics precisely to maintain consistent component performance levels over the full life of your system designs.

Our Lowell operation builds RF and microwave PIN diode switches, limiters, comb generators, and detectors in frequency ranges from 2 MHz to 20 GHz. All can be hermetically sealed to meet the

most stringent military or space requirements and can be combined to include several functions in a single high reliability package. Typical of these integrated packages are switch/limiters, switch matrices and limiter/detectors.

Integrated packages can provide higher performance benefits at lower cost than by designing with individual components. To assure the engineering expertise that will attain your desired performance levels, **Microsemi** only provides assemblies where we can control the high-risk components. In that way, we're able to develop custom packaging that meets your most demanding specifications.

Microsemi also can offer a significant number of existing configurations to minimize your NRE and provides many customers with microwave components no longer available from their original suppliers.

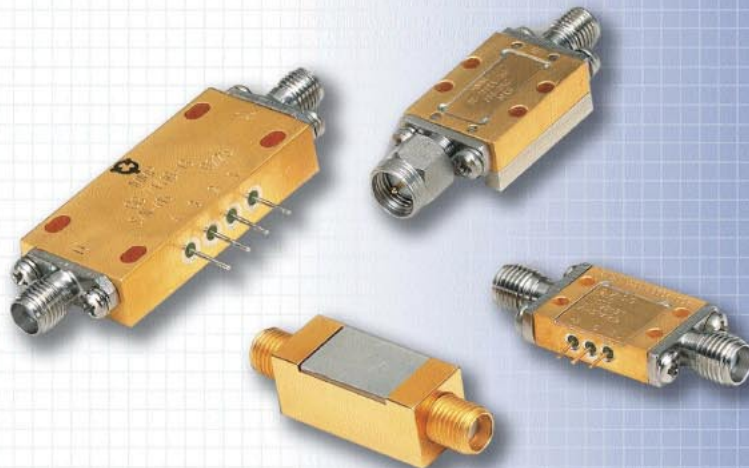


PIN Diodes

RF / MICROWAVE PIN DIODE SELECTOR GUIDE

		GC4200: SMALL SIGNAL			GC4400 / HUM2000: LARGE SIGNAL					
		HIGH SPEED SWITCHING			HIGH POWER SWITCHING & ATTENUATING					
FQ*(GHz)	C _j ,PT(Pf)	70V	100V	250V	100V	300V	750V	1000V	1500V	2000V
24	.06	GC4270	GC4220	GC4220						
18	.10	GC4271	GC4211	GC4221	GC4410	GC4430	GC4490			
12	.20	GC4272	GC4212	GC4222						
9	.30	GC4273	GC4213	GC4223	GC4411	GC4431	GC4491			
7	.40	GC4274	GC4214	GC4224						
5	.50	GC4275	GC4215	GC4225	GC4412	GC4432	GC4492			
4	.75				GC4413	GC4433	GC4493			
2	1.3						GC4494			
1	2.5						GC4495			
0.25	4.0							HUM2010	HUM2015	HUM2020
NIP VERSIONS ALSO AVAILABLE: GC4300 SERIES					NIP VERSIONS ALSO AVAILABLE: GC4500 SERIES					

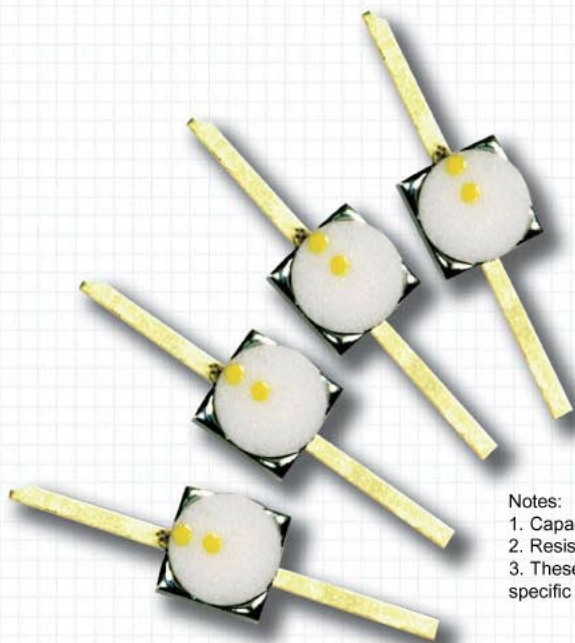
* Shunt configuration



GC4200 SERIES / SMALL SIGNAL / HIGH SPEED SWITCHING

CHIP ELECTRICAL SPECIFICATIONS: T_a 25°C

MODEL NUMBER	BREAKDOWN VOLTAGE (I _R =10uA MAX) V _B (MIN)(Volts)	JUNCTION CAPACITANCE ¹ C _J -10 (MAX) (pF)	SERIES RESISTANCE ² (20 mA, 1 GHz) R _{SD0} (MAX) (Ohms)	CARRIER LIFETIME (I _R =6 mA, IF=10 mA) T _L (TYP) (nS)	THERMAL RESISTANCE (MAX) (°C/W)
GC4270	70	0.06	1.5	100	80
GC4271	70	0.10	1.0	100	70
GC4272	70	0.20	0.8	100	70
GC4273	70	0.30	0.7	100	60
GC4274	70	0.40	0.6	100	50
GC4275	70	0.50	0.5	100	40
GC4210	100	0.06	1.5	200	80
GC4211	100	0.10	1.0	200	70
GC4212	100	0.20	0.75	200	70
GC4213	100	0.30	0.6	200	60
GC4214	100	0.40	0.5	200	50
GC4215	100	0.50	0.35	200	40
GC4220	250	0.06	2.5	500	80
GC4221	250	0.10	2.0	500	70
GC4222	250	0.20	1.5	500	70
GC4223	250	0.30	1.0	500	60
GC4224	250	0.40	0.8	500	50
GC4225	250	0.50	0.6	500	40



Notes:

1. Capacitance is measured at 1 MHz and -10 volts.
2. Resistance is measured using transmission loss techniques.
3. These devices are not available in all case styles. Please consult the factory for specific package styles offered

GC4400 SERIES / LARGE SIGNAL SWITCHING / ATTENUATOR

CHIP ELECTRICAL SPECIFICATIONS: T_a 25°C

MODEL NUMBER	BREAKDOWN VOLTAGE (I _R =10uA MAX) V _B (MIN) (Volts)	JUNCTION CAPACITANCE ¹ C _{J-50} (MAX) (pF)	SERIES RESISTANCE ² (100 mA, 100 mHz) R _{S100} (MAX) (Ohms)	CARRIER LIFETIME (I _R =6 mA, IF=10 mA) T _L (TYP) (uS)	THERMAL RESISTANCE (MAX) (°C/W)
GC4410	100	0.10	0.6	0.4	40
GC4411	100	0.25	0.5	0.6	25
GC4412	100	0.50	0.4	0.8	20
GC4413	100	0.75	0.3	1.2	10
GC4430	300	0.10	1.5	0.6	40
GC4431	300	0.25	1.2	1.2	30
GC4432	300	0.50	1.0	1.5	20
GC4433	300	0.75	0.8	2.0	10
GC4490	750	0.10	1.5	1.0	30
GC4491	750	0.25	1.2	2.0	25
GC4492	750	0.50	1.0	3.0	20
GC4493	750	0.75	0.8	4.0	10
GC4494	750	1.3	0.35	5.0	7
GC4495	750	2.5	0.3	6.0	5

Notes:

1. Capacitance is measured at 1 MHz and -50 volts.

2. Resistance is measured using transmission loss techniques.

3. These devices are not available in all case styles. Please consult the factory for specific package styles offered.

GC4700 SERIES LIMITER PIN DIODES

CHIP ELECTRICAL SPECIFICATIONS: T_a 25°C

MODEL NUMBER	V _B MIN(Volts) I _R =10uA MAX	C _{J0} TYP (pF)	C _{J0} MAX (pF)	TYPICAL R _S @10 mA Ohms	TYPICAL T _L (nS)	TYPICAL qP ¹ (°C/W)	MAXIMUM THERMAL ² RESISTANCE (°C/W)
GC4701	20	0.20	0.15	1.5	5	20	100
GC4702	20	0.50	0.30	1.2	10	12	80
GC4711	45	0.20	0.15	1.5	10	15	80
GC4712	45	0.50	0.30	1.2	15	10	60
GC4713	45	0.70	0.50	1.0	20	6	40
GC4721	120	0.20	0.15	1.5	50	1.2	40
GC4722	120	0.60	0.30	1.0	50	0.5	20
GC4723	120	0.80	0.50	0.5	100	0.30	15
GC4731	15	0.12	0.10	20	5	30	120
GC4732	15	0.20	0.15	1.5	5	20	80
GC4741	30	0.12	0.10	2.0	7	20	100
GC4742	30	0.20	0.15	1.5	7	15	70

Notes:

1. Pulse length 1 microsecond.

2. As measure in style 30 package.

GC4800 SERIES PLANAR BEAM LEAD PINS

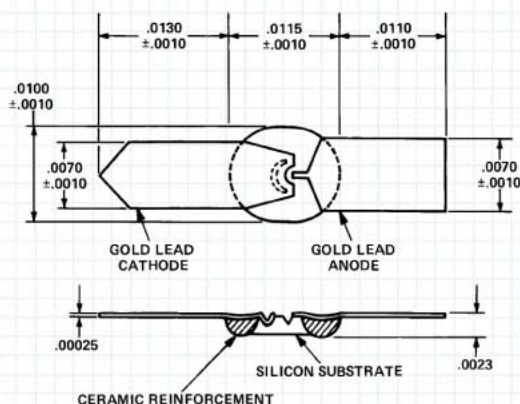
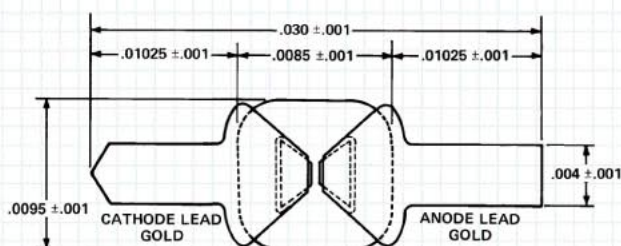
ELECTRICAL SPECIFICATIONS at 25°C

MODEL NUMBER	BREAKDOWN VOLTAGE (MIN) If = 10 μ A	CAPACITANCE (pF) (MAX) Vr = 50V	SERIES RESISTANCE (Ohms) (MAX) If = 50 mA	CARRIER LIFETIME (nS) (TYP) If = 10 mA; IR = 6 mA	TS (MAX) (nS)	FORWARD VOLTAGE (Volts) (TYP) If = 50mA
GC4801	100	.020	4.0	200	30	.90-1.05

PART NUMBER	BREAKDOWN VOLTAGE V_{BR} (Volts)		SERIES RESISTANCE R_s (Ω)		CAPACITANCE C_T (pF)		FORWARD VOLTAGE V_F (V)	REVERSE CURRENT I_R (nA)	MINORITY CARRIER LIFETIME t (nS)	
	MIN	TYP	TYP	MAX	TYP	MAX	MAX	MAX	MIN	TYP
GC4800A	80	100	4.5	6.5	.016	.020	1.1	100	100	150
TEST CONDITIONS	IR=10 μ A		A IF=20 mA f=2.2 GHz		VR=10V F=2.2 GHz		IF=20 mA	VR=30V	IF=10 mA IR=6 mA	

GC4900 SERIES MESA BEAM LEAD PINS

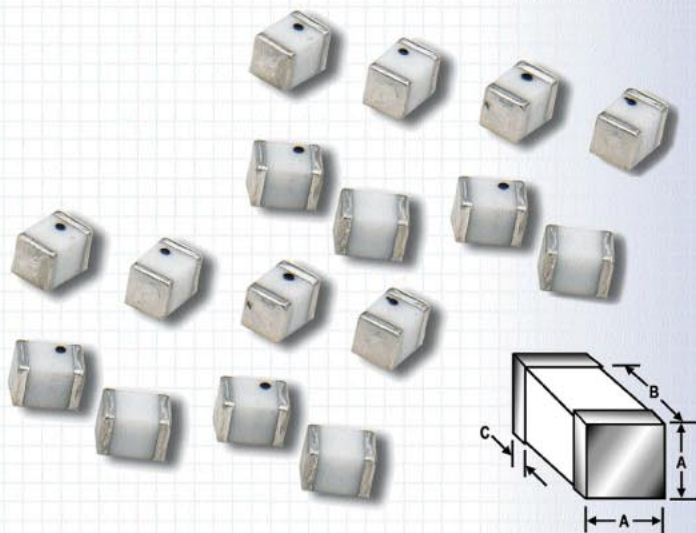
MODEL NUMBER	RF PERFORMANCE TYP		DC PERFORMANCE			
	Isol (dB) $V_R = 10V$ F=2.2 GHz	I_L (dB) $I_F=10mA$ F=2.2 GHz	V_B (V) (MIN) If=10 μ A	C_T (pF) (MAX) $V_R=10V$	R_s (Ohms) (MAX) $I_F=10mA$ F=2.2GHz	T_L (nS) (Typical) $I_F=10mA$, $I_R=6mA$
GC4941	22.0	0.14	50	.06	1.5	50
GC4942	26.0	0.17	50	.04	2.0	45
GC4943	27.5	0.27	50	.030	3.0	40
GC4944	29.0	0.30	50	.025	3.5	35
GC4945	30.5	0.45	50	.022	5.5	40
GC4946	32.0	0.51	50	0.20	6.5	40



SM SERIES CERAMIC MELF PINS

ELECTRICAL SPECIFICATIONS at 25°C

PART NO.	CASE STYLE SUGGESTED	VOLTAGE RATING IR < 10µa VR	TOTAL CAPACITANCE F = 1 MHz VR=50V pF (MAX)	SERIES RESIS- TANCE If=100mA F=100MHz OHM (MAX)	SERIES RESISTANCE If=200mA F=100MHz OHM (TYP)	CARRIER LIFETIME If=10mAµSEC (TYP)	TYPICAL THERMAL RESISTANCE °C/W
SM0502	M1	500	0.50	0.70	0.55	1.0	35
SM0504	M1	500	0.60	0.60	0.45	1.5	20
SM0508	M1	500	0.90	0.40	0.25	2.0	15
SM0509	M1	500	1.20	0.35	0.20	2.5	15
SM0511	M1	500	1.25	0.30	0.15	3.0	15
SM0512	M1	500	1.50	0.25	0.12	3.5	15
SM0812	M1	700	1.30	0.40	0.25	4.0	15
SM1001	M1	700	1.30	0.35	0.20	4.5	15
SM1002	M1	50	1.20	.75 @50mA	0.20	4.0	15
SM1003	M1	35	1.2 @ 20V	.50 @ 10mA	0.10	0.6	25



DIM	M1	
	INCHES	
	MIN	MAX
A	0.080	0.095
B	0.115	0.135
C	0.008	0.030

Monolithic Microwave Surface Mount (MMSM) Micro-Pak PIN Diodes

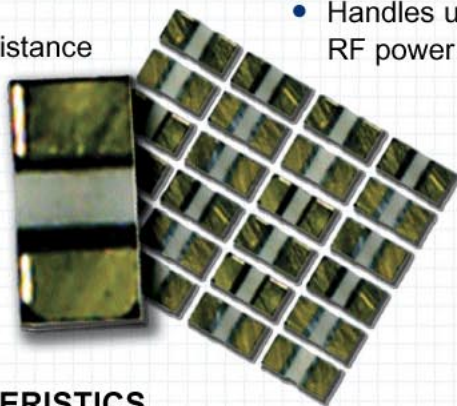
This series of surface mount PIN diodes utilize new and unique monolithic MMSM technology. The technology is a package/device integration accomplished at the wafer fabrication level. Since the cathode and anode interconnections utilize precision photolithographic techniques rather than wire bonds, parasitic package inductance is tightly controlled. The package parasitics provide smooth non-resonant functionality through 12GHz.

KEY FEATURES:

- Tape and Reeled for Automatic Assembly
- Low Series Inductance (<0.2nH typical)
- Low Parasitic Capacitance (0.06 pf typical)
- Meets All Commercial Qualification Requirements
- 0204 Outline
- Very low thermal resistance

APPLICATIONS/BENEFITS:

- 2.4 GHz PCS communications
- 5.7 GHz Wireless LANS
- Solid State Switches, Attenuators, Limiters
- Phase Shifters
- Widest bandwidth of any commercial surface mounted devices
- Ultra tight parametric distribution
- Handles up to 10 watts incident RF power



ELECTRICAL CHARACTERISTICS

Part Number	V _b @10uA (min) Volts	C _t @10V (Pf)	R _s @.01mA Ohms	R _s @1mA Ohms	R _s @10mA Ohms	R _s @20mA Ohms	T _L Nsec	Outline	Application
MPP4201	70	0.20				2.5	150	206	High Power Switch
MPP4202	50	0.15				2.8	50	206	MRI
MPP4203	50	0.10				3.0	50	206	High Isolation Switch and Attenuator
MPP4204	25	0.15			2.0		30	206	High Speed Switch
MPP4205	70	0.15	250	7-16	5.0		150	206	Attenuator
MPL4700	25	0.15		2.0	2.0		10	206	Amplifier Protection

Power PIN Diodes for LF / HF / VHF / UHF Switching & Attenuating

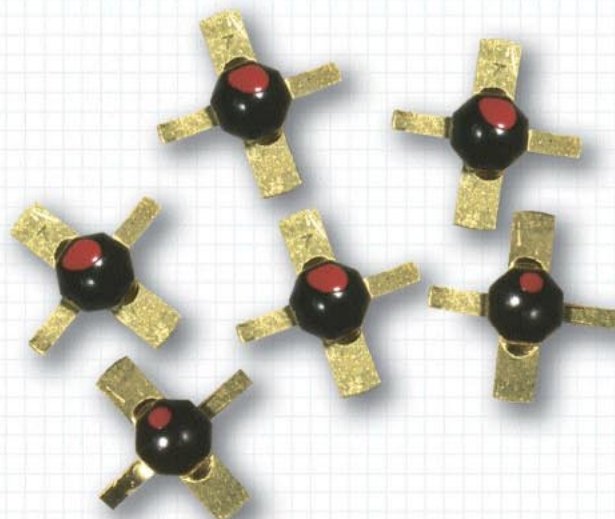
Part Number	Power Dissipation (Watts)	TAU	RS (Ohms)	VR (Volts)	Ct (pF)
UM9301	1	4	3	75	0.8
UM9301SM	1	4	3	75	0.8
UM9415	1	5	1	50	4
UM6201	2	2.5	0.4	100	1.1
UM6202	2	2.5	0.4	200	1.1
UM6204	2	2.5	0.4	400	1.1
UM7201	2	1.5	0.25	100	2.2
UM7201SM	2	1.5	0.25	100	2.2
UM7202	2	1.5	0.25	200	2.2
UM7202SM	2	1.5	0.25	200	2.2
UM7204	2	1.5	0.25	400	2.2
UM7204SM	2	1.5	3	400	2.2
UM6001	2.5	1	1.7	100	0.5
UM6002	2.5	1	1.7	200	0.5
UM6006	2.5	1	1.7	600	0.5
UM6010	2.5	1	1.7	1000	0.5
UM6601	2.5	1	2.5	100	0.4
UM6601SM	2.5	1	2.5	100	4
UM6602	2.5	1	2.5	200	0.4
UM6602SM	2.5	1	2.5	200	0.4
UM6606	2.5	1	2.5	600	0.4
UM6606SM	2.5	1	2.5	600	0.4
UM6610	2.5	1	2.5	1000	0.4
UM6610SM	2.5	1	2.5	1000	0.4
UM9701	2.5	1.5	0.8	100	1.8
UPP1001	2.5	2	0.45	100	1.6
UPP1002	2.5	2	0.45	200	1.6
UPP1004	2.5	2	0.45	400	1.6
UPP9401	2.5	2	1	50	1
UM7301	4	4	3	100	0.7
UM7301SM	4	4	3	100	0.7
UM7302	4	4	3	200	0.7
UM7302SM	4	4	3	200	0.7
UM7306	4	4	3	600	0.7
UM7306SM	4	4	3	600	0.7
UM7310	4	4	3	1000	0.7
UM7310SM	4	4	3	1000	0.7
UM7001	5.5	2.5	1	100	0.9
UM7001SM	5.5	2.5	1	100	0.9
UM7002	5.5	2.5	1	200	0.9
UM7002SM	5.5	2.5	1	200	0.9
UM7006	5.5	2.5	1	600	0.9
UM7006SM	5.5	2.5	1	600	0.9
UM7010	5.5	2.5	1	1000	0.9
UM7010SM	5.5	2.5	1	1000	0.9
UM7101	5.5	2	0.6	100	1.2
UM7101SM	5.5	2	0.6	100	1.2
UM7102	5.5	2	0.6	200	1.2
UM7102SM	5.5	2	0.6	200	1.2
UM7104	5.5	2	0.6	400	1.2
UM7104SM	5.5	2	0.6	400	1.2
UM7108	5.5	2	0.6	800	1.2
UM7108SM	5.5	2	0.6	800	1.2
UM7501	5.5	2.5	1	100	1
UM7502	5.5	2.5	1	200	1
UM7504	5.5	2.5	1	400	1
UM7506	5.5	2.5	1	600	1
UM7508	5.5	2.5	1	800	1

Part Number	Power Dissipation (Watts)	TAU	RS (Ohms)	VR (Volts)	Ct (pF)
UM7510	5.5	2.5	1	1000	1
UM7512	5.5	2.5	1	1200	1
UM7514	5.5	2.5	1	1400	1
UM9401	5.5	1	1	50	1.5
UM9401F	5.5	1	1	50	1.5
UM9401SM	5.5	1	1	50	1.5
UM9601	7.5	2	0.6	100	1.2
UM9602	7.5	2	0.6	400	1.2
UM9603	7.5	2	0.6	100	1.2
UM9604	7.5	2	0.6	400	1.2
UM9605	7.5	2	0.6	100	1.2
UM9606	7.5	2	0.6	400	1.2
UM9607	7.5	2	0.6	100	1.2
UM9608	7.5	2	0.6	400	1.2
UM4301	10	6	1.5	100	2.2
UM4301SM	10	6	1.5	100	2.2
UM4302	10	6	1.5	200	2.2
UM4302SM	10	6	1.5	200	2.2
UM4306	10	6	1.5	600	2.2
UM4306SM	10	6	1.5	600	2.2
UM4310	10	6	1.5	1000	2.2
UM4310SM	10	6	1.5	1000	2.2
UM4901	10	5	0.5	100	3
UM4901SM	10	5	0.5	100	3
UM4902	10	5	0.5	200	3
UM4902SM	10	5	0.5	200	3
UM4906	10	5	0.5	600	3
UM9402	10	1	1	50	1.5
UM4001	12	5	0.5	100	3
UM4001SM	12	5	0.5	100	3
UM4002	12	5	0.5	200	3
UM4002SM	12	5	0.5	200	3
UM4006	12	5	0.5	600	3
UM4006SM	12	5	0.5	600	3
UM4010	12	5	0.5	1000	3
UM4010SM	12	5	0.5	1000	3
UM4906SM	12	5	0.5	600	3
HUM2010	13	10	0.2	1000	4
HUM2015	13	10	0.2	1500	4
HUM2020	13	10	0.2	2000	4
UM2101	25	60	2	100	2.5
UM2102	25	60	2	200	2.5
UM2104	25	60	2	400	2.5
UM2106	25	60	2	600	2.5
UM2108	25	60	2	800	2.5
UM2110	25	60	2	1000	2.5
UM2301	50	80	0.4	100	20
UM2301S	50	80	0.4	100	20
UM2302	50	80	0.4	200	20
UM2302S	50	80	0.4	200	20
UM2304	50	80	0.4	400	20
UM2304S	50	80	0.4	400	20
UM2306	50	80	0.4	600	20
UM2306S	50	80	0.4	600	20
UM2308	50	80	0.4	800	20
UM2308S	50	80	0.4	800	20
UM2310	50	80	0.4	1000	20
UM2310S	50	80	0.4	1000	20

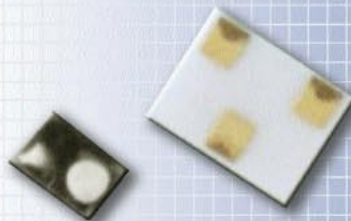
Schottky Mixer Diodes

Schottky Mixer Diode Selector Guide

Freq. Range	Part Number	Barrier	Vb min (V)	Cj max (pF)	VF max (mV)	Rd max (Ohms)	NFssbs Typ (dB)	Zif typ (Ohms)
Ku-Ka	GC9901	ULTRA-LOW	2	0.09	310	18	6.5	140
X	GC9902			0.15	280	14	6	
C	GC9903			0.3	270	12	5.5	
S	GC9904			0.5	250	10	5.5	
Ku-Ka	GC9911	LOW	2	0.09	360	18	6.5	170
X	GC9912			0.15	350	14	6	
C	GC9913			0.3	340	12	5.5	
S	GC9914			0.5	330	10	5.5	
Ku-Ka	GC9921	LOW-MED	2	0.15	440	18	6.5	200
X	GC9922			0.15	430	14	6	
C	GC9923			0.3	410	12	5.5	
S	GC9924			0.5	390	10	5.5	
Ku-Ka	GC9931	MEDIUM	3	0.3	540	18	6.75	250
X	GC9932			0.15	530	14	6.25	
C	GC9933			0.3	520	12	5.75	
S	GC9934			0.5	500	10	5.5	
Ku-Ka	GC9941	HIGH	4	0.5	650	20	7	300
X	GC9942			0.15	630	16	6.25	
C	GC9943			0.3	620	12	5.75	
S	GC9944			0.5	600	10	5.75	



Enhanced Performance Surface Mount (EPSM) Packaged Products



EPSM PIN Diodes for Switching & Attenuation

Part Number	VB	Ct @ VR max	Rs @ IF max	TL typ	Application
LSP1000	35 min	0.28 @ 5V	2.5 Ohms @ 5mA	80 nS	Switch
LSP1002	100 min	0.32 @ 50V	4.0 Ohms @ 100mA	1500 nS	Attenuator
LSP1004	35 min	0.75 @ 20V	0.6 Ohms @ 10mA	150 nS	Switch
LSP1011	200 min	0.35 @ 50V	2.0 Ohms @ 100mA	2000 nS	Attenuator
LSP1012	20 min	0.35 @ 10V	1.8 Ohms @ 10mA	5 nS	Limiter

EPSM Super Hyperabrupt 12V Varactors for Low Voltage VCOs

Part Number	CT1 (min)	CT2.5	CT4 (max)	CT8 (max)	Q (4V/50MHz) min
KV1913A	36 pF	18 - 27 pF	12.0 pF	6.20 pF	400
KV1953A	26 pF	13 - 20 pF	9.0 pF	4.70 pF	500
KV1923A	17 pF	8.5 - 13 pF	6.0 pF	3.20 pF	600
KV1933A	13 pF	6.5 - 10 pF	4.5 pF	2.70 pF	750
KV1943A	9 pF	4.5 - 6.5 pF	3.0 pF	1.70 pF	900
KV1963A	4 pF	2.0 - 3.0 pF	1.5 pF	1.00 pF	1200
KV1973A	1.8 pF	1.1 - 1.5 pF	0.8 pF	0.55 pF	1400
KV1983A	1.2 pF	0.8 - 1.1 pF	0.6 pF	0.45 pF	1600
KV1993A	0.6 pF	0.5 - 0.8 pF	0.4 pF	0.35 pF	1800

Microwave Hyperabrupt 22V Varactors for Wide Bandwidth VCOs

Part Number	CT0 typical	CT4	CT20 max	Q (4V/50MHz) min
KV2163	26 pF	8.75 - 10.80 pF	2.50 pF	400
KV2153	13.5 pF	4.45 - 5.50 pF	1.30 pF	600
KV2143	7 pF	2.65 - 3.30 pF	0.90 pF	700
KV2133	5 pF	1.75 - 2.20 pF	0.70 pF	850
KV2123	3 pF	1.30 - 1.65 pF	0.55 pF	1000
KV2113	2 pF	0.85 - 1.10 pF	0.45 pF	1200

Microwave Abrupt 30V Varactors for Moderate Bandwidth, Low Noise VCOs

Part Number	CT0/CT4 (min)	CT4 +/- 10%	CT4/CT30 (min)	Q (4V/50MHz) min
GC1300	1.5	0.8 pF	1.45	3900
GC1301	1.6	1.0 pF	1.55	3800
GC1302	1.7	1.2 pF	1.60	3700
GC1303	1.8	1.5 pF	1.65	3600
GC1304	1.9	1.8 pF	1.70	3500
GC1305	2.0	2.2 pF	1.75	3400
GC1306	2.0	2.7 pF	1.80	3300
GC1307	2.1	3.3 pF	1.85	3100
GC1308	2.1	3.9 pF	1.85	2700
GC1309	2.1	4.7 pF	1.85	2600
GC1310	2.1	5.6 pF	1.85	2500

Tuning Varactors

VARACTOR CATEGORY PERFORMANCE GUIDE

CATEGORY	MODEL NUMBER or FAMILY	MAX VOLTAGE	TYPICAL RATIO*	MOD SENS LINEARITY*	RELATIVE Q or VCO PHASE NOISE
ABRUPT	GC1200;GC1300;GC1500; 1N5400	30 V	4:01	POOR; EXPONENTIAL	BEST
	GC1600; 1N5400	45 V	5:01		
	GC1700; 1N5100	60 V	6:01		
HYPERABRUPT	KV2100; MPV2100	22 V	11:01	GOOD (MID-RANGE)	GOOD - VERY GOOD
	KV2101				
	KV2201				
	KV2301				
	KV2401				
	KV2501				
	KV2601				
	KV2701				
	KV2801				
	KV3201; KV31S1	30 V	11:01	GOOD (MID-RANGE)	VERY GOOD
	KV3901; KV38S2				
LOW "S" LINEAR FLTVARS	GC15000	22 V	6:01	EXCELLENT	EXCELLENT
HIGH "S" LINEAR FLTVARS	GC15000	22 V	11:01	EXCELLENT	EXCELLENT
SUPER HYPERABRUPTS	KV1905A	12 V	3:1	GOOD (MID-RANGE)	VERY GOOD
	KV1925A				
	KV1935A				
	KV1945A				
	KV1965A; MPV1965				
	KV1975A	12 V	4:1	GOOD (MID-RANGE)	VERY GOOD
	KV1911A-KV1991A	12 V	6:1	GOOD (MID-RANGE)	VERY GOOD
	KV1912A -KV1932A				
	KV1913A -KV1993A				
	KV1400	12 V	13:1	GOOD (MID-RANGE)	GOOD
	KV1500				
	KV1600				
	KV1700				
	KV1800				

* Dependent upon package style

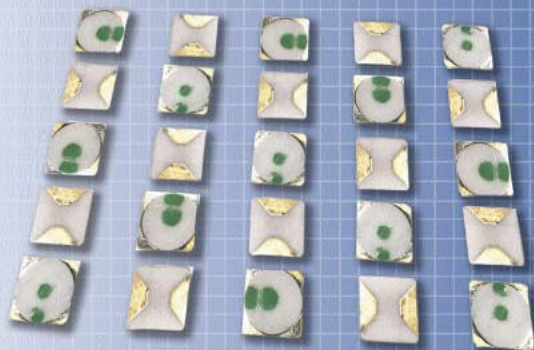
VARACTOR DIODE SELECTOR GUIDE

Freq. Band	Super Hyper Vb=12V P/N Series	High "S" Linear Vb=22V P/N Series	Low "S" Linear Vb=22 V P/N Series	Hyper Vb=22 V P/N Series	Abrupt Vb=30V Chip Ceramic Glass*	Abrupt Vb=30V EPSM	Abrupt Vb=30V SOT-23	Abrupt Vb=20V Glass
Microwave to 18 GHz	KV199x KV198x KV197x KV196x KV194x KV193x	GC15006 GC15007 GC15008 GC15009 GC15010	GC15001 GC15002 GC15003 GC15004 GC15005	KV211x KV212x KV213x KV214x KV215x KV216x	GC1500A GC1500B GC1500 GC1501 GC1502 GC1503 GC1504 GC1505 GC1506 GC1507	GC1300 GC1301 GC1302 GC1303 GC1304 GC1305 GC1306 GC1307 GC1308 GC1309 GC1310	GC1202 GC1203 GC1204 GC1205 GC1206 GC1207	N/A
UHF to 1.0 GHz	KV192x KV195x KV191x	GC15011 GC15012 GC15013	GC15014 GC15015 GC15016	KV2101 KV3201 KV3901 KV2801	GC1508 GC1509 GC1510 GC1511 GC1512 GC1513	N/A	GC1208 GC1209 GC1210 GC1211 GC1212 GC1213 GC1214	KV620 KV621 KV622 KV623 KV624 KV625 KV626
VHF to 250 MHz	KV1401 KV1501	N/A	N/A	KV2001 KV2201 KV2301	1N5441 1N5476 thru	N/A	GC1215 GC1216 GC1217	KV627 thru KV650
HF 1 – 50 MHz	KV1601 KV1701 KV1801	N/A	N/A	KV2401 KV2501 KV2701 KV2601	N/A	N/A	N/A	N/A

x denotes package option: 1 = chip, glass, or ceramic; 2 = SOT-23; 3 = EPSM;

Some limitations apply;

* Not all devices available in glass. Consult factory for details.



Monolithic Microwave Surface Mount (MMSM) Varactor Diodes

This series of surface mount Varactor diodes utilize new and unique monolithic MMSM technology. The technology is a package/device integration accomplished at the wafer fabrication level. Since the cathode and anode interconnections utilize precision photolithographic techniques rather than wire bonds, parasitic package inductance is tightly controlled. The package parasitics provide smooth non-resonant functionality through 12GHz.

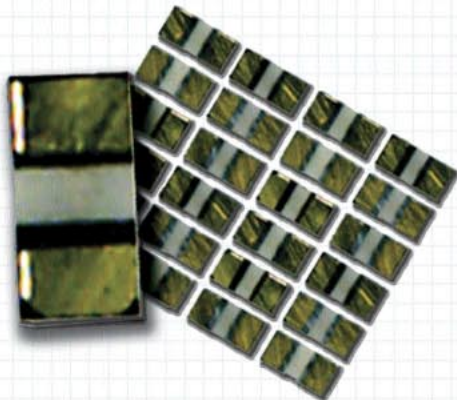
KEY FEATURES:

- Tape and Reeled for Automatic Assembly
- Low Series Inductance ($<0.2\text{nH}$ typical)
- Low Parasitic Capacitance (0.06 pf typical)
- Meets All Commercial Qualification Requirements
- 0204 Outline
- Very low thermal resistance

ELECTRICAL CHARACTERISTICS:

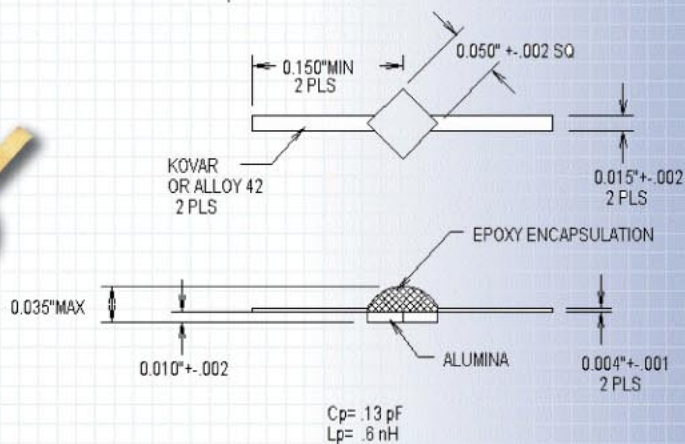
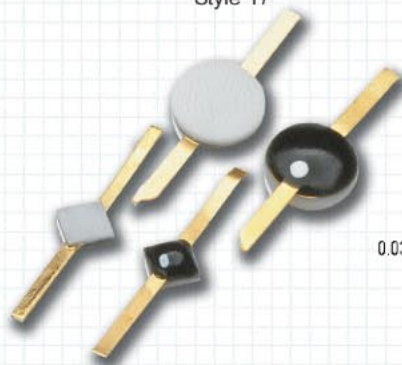
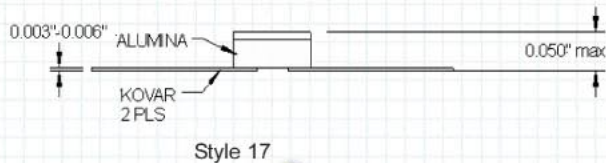
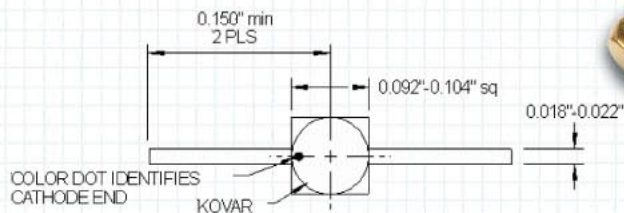
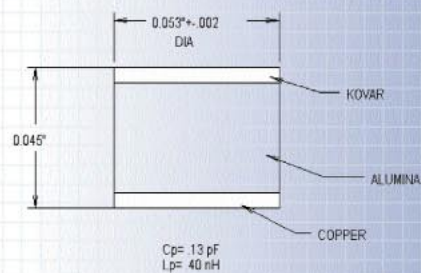
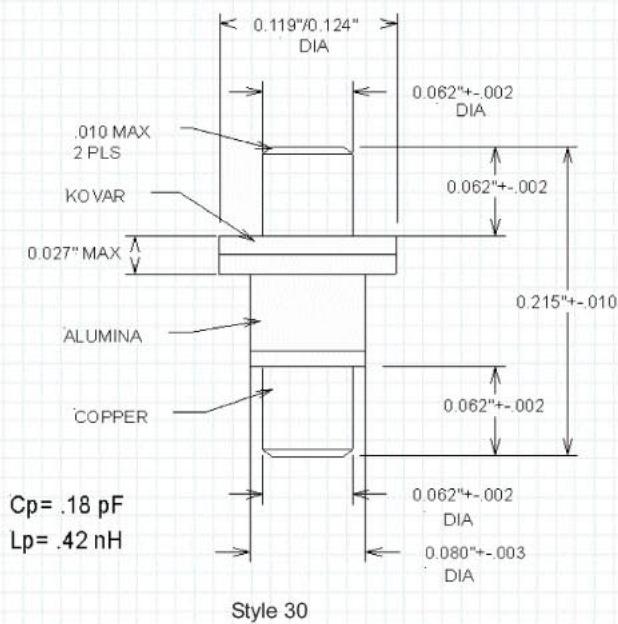
Part Number	Vb@10uA (min) Volts	Ct@1V (Pf)	Ct 1V/Ct 3V (Pf)	Ct 1V/Ct6V (Pf)	Q (Min/4V/ 50MHz)	Outline Dwg Number	Application
MPV1965	15	2.6-3.8	1.4-2.2	2.6-3.6	1500	206	Low Voltage VCO

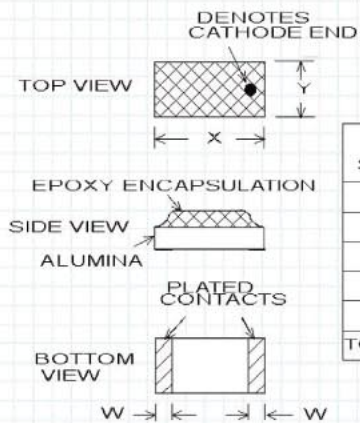
Part Number	Vb@10uA (min) Volts	Ct@4V (Pf)	Ct 0V (Typ)(Pf)	Ct @20V (Pf)	Q (Min/4V/ 50MHz)	Outline Dwg Number	Application
MPV2100	22	0.9-1.5	3.25	0.2-0.5	1500	206	Wide Bandwidth VCO



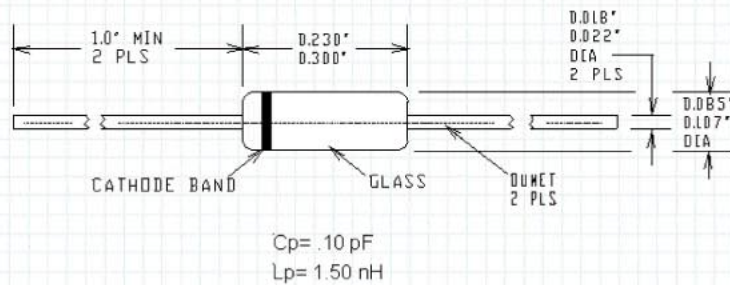
APPLICATIONS/BENEFITS

- 2.4 GHz PCS
- 5.7 GHz Wireless LANS
- VCO's (Voltage Controlled Oscillator)
- Tunable Filter
- Widest bandwidth of any commercial surface mounted devices
- Ultra tight parametric distribution

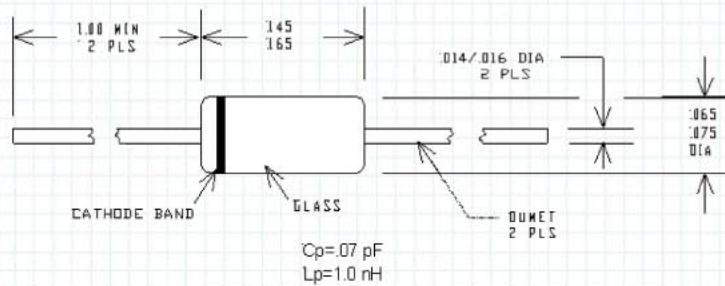




PKG STYLE	DIMENSIONS (MILS)			
	W	X	Y	Z
150A	11+/-3	60	40	30
150B	15+/-4	75	50	35
150C	15+/-4	100	50	35
150D	20+/-5	120	60	35
150E	20+/-5	200	100	35
TOL +/-		3	3	Nom.

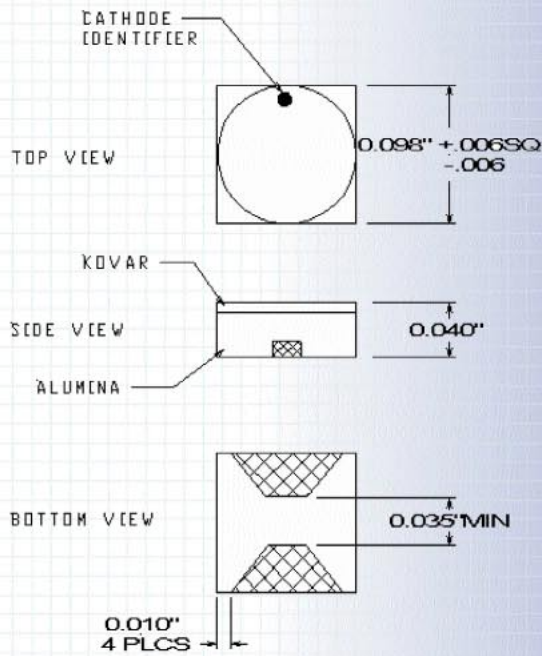


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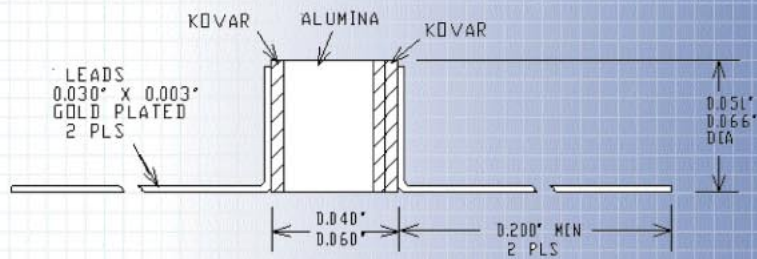
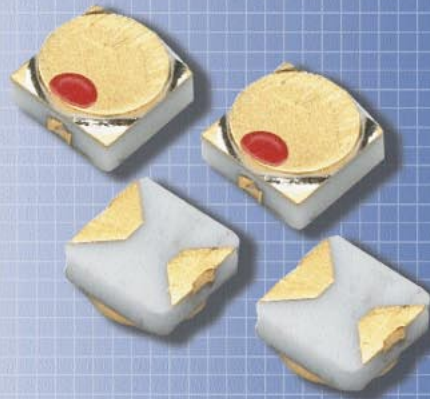


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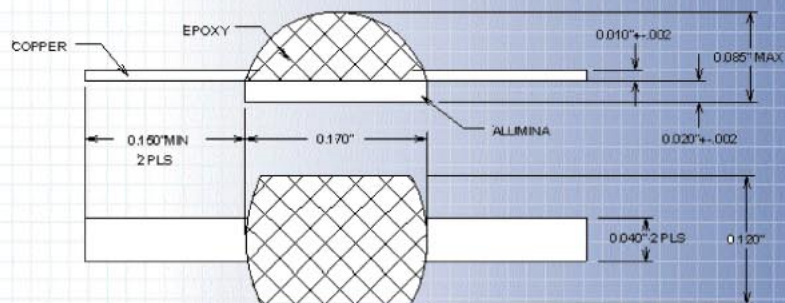




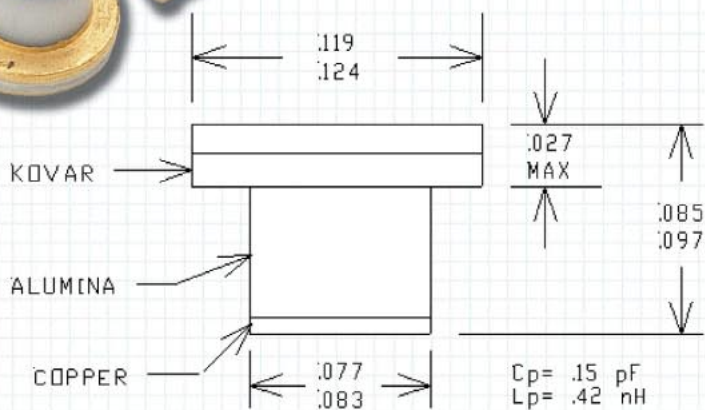
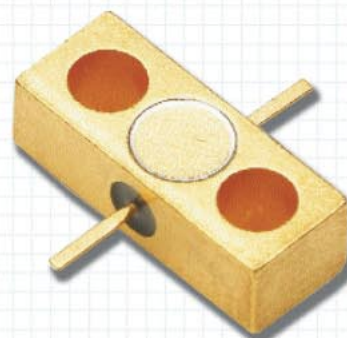
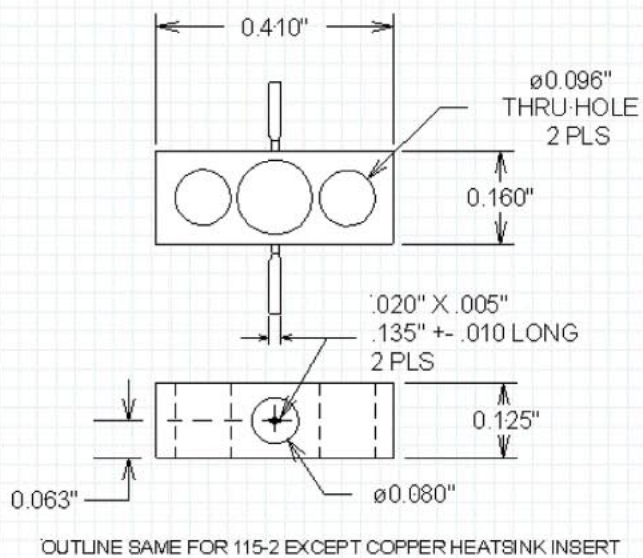
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About Microsemi Power Products Group

Microsemi Power Products Group was created in 2006 with the acquisition of Advanced Power Technology, Inc., a company at the forefront of power semiconductor technology since its founding in 1984. Significant within this Power Products Group is the RF Power Products operation, originally known as GHz Technology Inc. prior to its acquisition by APT. This new Microsemi organization offers products featuring Bipolar, VDMOS, and LDMOS technologies. All of its products are based on silicon and span the frequency range from 1 MHz to 3.5GHz using supplies from as low as a few volts to as high as 300 volts.

RF Power Products facilities are located in Santa Clara, California and Bend, Oregon. In addition to our internal wafer fab and assembly, products are assembled in facilities operated by our production partner in Malaysia. We offer products that are ISO9001 registered, space qualified, and Mil Standard approved. Our automated assembly and final RF Test lines are among the most modern in the world, assuring consistent quality and repeatable performance.

We support our product roadmaps with continuing investment in new technology and product developments structured to set performance standards in applications for Broadcast, ISM, Avionics, L-Band Radar, S-Band Radar, and pulsed LDMOS.

Our Mission and Goals

Our mission is to be the world leader in high power silicon RF & microwave power transistors for applications in Avionics, Broadcast, Communications, ISM, and Radar. We will continue to push the performance envelope with the new products we introduce.

Our goal is to provide the customer with products that meet all specified requirements, with performance that is consistent from lot-to-lot while meeting the reliability requirements over the life of the program. This ensures that the customer achieve the optimum system performance and the lowest total cost of ownership.

Product Features

- Bipolar, LDMOS and VDMOS Transistors designed for specific CW or Pulsed applications
- Gold Metalization for longest lifetime
- Automated Assembly for tightest production control and lot-to-lot consistency
- Internal pre-match for best performance over the entire operating frequency range
- Automated RF testing over the operating band to ensure specified performance
- Custom parts optimized for their applications and tested in correlated fixtures to agreed-upon specifications
- Hi Rel screening performed to selected levels: JAN, JAN-TX, JAN-TXV, JAN-S

Next Generation Wide Band Gap (WBG) Technology

Microsemi is developing the next generation Wide Band Gap (WBG) semiconductor transistor technology at their Advanced Technology Center, in Boulder, Colorado. The Colorado team, formerly of PowerSicel Inc, are working in close collaboration with Microsemi in Santa Clara on the commercialization focusing initially on Radar, Broadband Communication and Avionics markets.

Due to the vastly superior material properties of the WBG semiconductors SiC and GaN compared to Si and GaAs, this new class of transistors exhibit higher power/voltage operation and higher power density, leading to significant enhancements in pulse widths and broadband capability as well as in efficiency and robustness compared conventional transistor technologies. In Radar applications, L/S Band transistors are in development which will provide significantly longer pulse handling capability and higher power. For Defense communication, octave bandwidth power transistors are in development. Prototype units will be available in 2006. Microsemi Colorado is also currently participating in multiple government funded programs from DARPA, AFRL and NIST and working in close partnership with OEMs on the advancement and system insertion of this cutting edge technology.

The Microsemi Colorado team has at its disposal a dedicated development and pilot production facility in Boulder, Colorado complete with equipment and staff for the design, processing, packaging, and testing of WBG technology.

AVIONICS



- Separate designs for each application: DME, IFF, JTIDS, MODE-S, TACAN, TCAS
- Full series of parts for each application – low power to highest power available on the market.
- Highest Power Output to minimize number of transistors required for the final stage.
- Driver transistors with power gain per stage that is set to minimize the number of stages required in the system.
- Structured to meet the system signal signature on parameters such as:
rise and fall time, pulse droop, pulse burst uniformity, power gain change versus frequency.
- Tested under the full set of RF operating conditions to insure full compliance within customer final power amplifier with minimum factory tune up.
- Offering both Bipolar and LDMOS transistors for maximum design flexibility.

	Pout Min (W)	Pin Max (W)	Gain Min (dB)	Vcc (V)	η Typ (%)	Pulse Width (μ s)	Duty cycle (%)	VSWR Load	θ_{jc} (°C/W)	Case Style	Part Number
Transponder / Interrogator, 1030/1090 MHz, Class C, Common Based, Pulsed	150	25	7.80	50	40	10	1	30:1	0.30	M138	MS2393
	175	25	8.50	50	40	10	1	30:1	0.45	55CX-1	TPR175
	400	75	7.30	50	40	10	1	20:1	0.20	55CT-1	TPR400
LDMOS: Transponder/Interrogator, 1030/1090 MHz, Class AB Common Source	110	5.5	13.00	32	50 *	32	2	3:1	0.38	55QZ	1011LD110
	200	10	13.00	32	50 *	32	2	3:1	0.195	55QX	1011LD200
	300	15	13.00	32	50 *	32	2	3:1	0.13	55QM	1011LD300
Transponder / 1090 MHz, Class A, Common Emitter	0.20	0.02	10.00	18	--	CW	--	30:1	25.00	M115	MS2290
	0.60	0.05	10.90	18	--	CW	--	30:1	35.00	M220	MS2203
	0.60	0.05	10.90	18	--	CW	--	30:1	25.00	M115	MS2204
Transponder / 1090 MHz, Class C, Common Base, Pulsed	2	0.25	9.00	28	35	10	1	--	10	M220	MS2201
	4	0.4	10.00	28	35	10	1	--	35	M115	MS2206
	35	5.6	8.00	50	30	10	1	--	2.00	M115	MS2341
	75	13	7.60	50	--	10	1	--	0.80	M115	MS2361
	95	10	9.70	40	40	10	1	--	0.60	M210	MSC1100
	350	70	6.90	50	40	10	1	20:1		M218	MSC1350M
	450	90	7.00	50	40	10	1	25:1	0.12	M216	MSC1450M
	500	150	5.20	50	35	10	1	10:1	0.10	55CT-1	TPR500
	500	150	5.20	50	35	10	1	10:1	0.10	55KT-1	TPR500A
	600	150	6.00	50	35	10	1	30:1	0.06	M112	MS2473
	700	150	6.70	50	35	10	1	10:1	0.08	55KT-1	TPR700
	1000	208	6.80	50	43	10	1	9:1	0.06	55KV-1	TPR1000
Interrogator / 1030 MHz, Class C, Common Base, Pulsed	1000	158	8.00	50	45	1	1	4:1	0.08	55SW-1	ITC1000
	1000	100	10.00	50	50	1	1	4:1	0.08	55SW-1	ITC1100
TCAS 1090 MHz, Class C, Common Base - Pulsed	400	63	8.00	50	45	32	2	15:1	0.17	M216	MS2207
TCAS 1030 MHz, Class C, Common Base - Pulsed	450	100	6.50	45	35	32	2	10:1	0.06	55KT-1	TCS450
	800	100	9.00	45	45	32	1	4:1	0.09	55SM-1	TCS800
	1200	150	9.00	50	45	32	2	4:1	0.02	55TU-1	TCS1200
MODE S, 1030/1090 MHz, Class C, Common Base, Pulsed	400	90	6.50	45	35	32	1	10:1	0.15	55KT-1	MDS400
	500	70	8.50	50	45	32	2	4:1	0.12	55ST-1	10500
	500	70	8.50	50	45	32	2	4:1	0.12	55SM-1	10502
	800	100	9.00	50	40	128**	2	4:1	0.12	55ST-1	MDS800
	1100	115	9.40	50	40	128**	2	4:1	0.02	55TU-1	MDS1100
MODE S-ELM, 1030/1090 MHz, Class C, Common Base, Pulsed	500	70	8.50	50	55	2400***	6.7	3:1	0.15	55ST-1	MDS500L

* Idq for 1011LD110 = 250 mA, Idq for 1011LD200 = 500 mA, Idq for 1011LD300 = 750 mA

** 0.5 us on/0.5us off x 128, repeated at 6.4 ms

***32us on/18us off x 48, repeated at 23 ms

	Pout Min (W)	Pin Max (W)	Gain Min (dB)	Vcc (V)	η typ (%)	Pulse Width (μ s)	Duty cycle (%)	VSWR Load	θ_{jc} (°C/W)	Case Style	Part Number
DME/TACAN 960-1215 MHz, Class C, Common Base - Pulsed	7.0	1.0	8.50	50	25	10	1	10:1	3.50	55CT-1	0912-7
	15	1.5	10.00	50	30	10	1	20:1	2.00	M105	MS2321
	25	3.5	8.50	50	45	10	1	10:1	1.40	55CT-1	0912-25
	45	7.0	8.10	50	45	10	1	10:1	0.80	55CT-1	0912-45
Air DME 1025-1150 MHz, Class A, Common Emitter, CW	0.60	0.05	10.80	18	--	CW	--	10:1	33.00	55FW-2	1000MP
Air DME 1025-1150 MHz, Class C, Common Base - Pulsed	2	0.3	10.00	35	45	20	1	10:1	10.00	55FW-1	1002MP
	2	0.25	9.00	35	35	10	1	20:1	10.00	M115	MS2202
	4	0.5	9.00	35	35	10	1	20:1	7.00	55FW-1	1004MP
	4	0.5	9.00	28	35	10	1	20:1	5.00	M220	MS2205
	5	0.55	9.50	28	--	10	1	20:1	8.00	M115	SD1526-01
	15	1.5	10.00	50	35	10	1	10:1	2.00	55FW-1	1015MP
	15	1.5	10.00	50	--	--	--	--	--	M115	MSC1015MP
	35	3.5	10.00	50	45	10	1	10:1	1.00	55FW-1	1035MP
	35	3	10.60	50	43	10	1	20:1	1	M220	MS2553
	35	3	10.70	50	48	10	1	20:1	1.00	M115	MS2575
	75	12	7.80	50	45	10	1	10:1	0.80	55FW-1	1075MP
	75	13	7.60	50	--	--	--	--	1.00	M115	MSC1075MP
	90	14	8.10	50	45	10	1	10:1	0.80	55FW-1	1090MP
	90	13	8.40	50	--	10	1	20:1	0.60	M115	SD1536-03
	90	13	8.40	50	--	10	1	20:1	0.60	M105	SD1536-08
	150	25	7.80	50	40	10	1	20:1	0.60	55AY-1	DME150
	175	30	7.60	50	40	10	1	20:1	0.30	M218	MSC1175M
	250	60	6.20	50	40	10	1	20:1	0.20	M218	MS2554
	300	70	6.30	50	35	10	1	30:1	0.20	M103	MS2421
	375	85	6.40	50	40	10	1	30:1	0.20	55AT-1	DME375A
	400	90	6.50	50	--	10	1	30:1	0.12	M112	MS2441
	400	90	6.50	50	40	10	1	25:1	0.12	M216	MSC1400M
	500	125	6.00	50	35	10	1	10:1	0.10	55KT-1	DME500
	550	150	5.60	50	--	10	1	30:1	0.06	M112	MS2472
	800	100	9.00	50	40	10	1	5:1	0.05	55ST-1	DME800
JTIDS 960-1215 MHz, Class C Common Base - Pulsed	6	0.7	9.30	28	45	6.4	21	5:1	7.00	M222	MS2211
	15	2.3	8.10	28	45	10	21	20:1	3.00	M222	MS2212
	25	5.0	7.00	36	40	10	40	5:1	1.80	55AT-1	JTDB25
	30	5	7.80	35	40	6.4	21	15:1	2.20	M214	MS2213
	50	10	7.00	36	40	10	22	10:1	0.80	55AT-1	JTDA50
	75	15	7.00	36	40	10	40	3:1	0.80	55AT-1	JTDB75
	85	15	7.50	35	40	6.4	21	5:1	0.75	M218	MS2214
	145	25	7.60	36	45	7	22	3:1	0.50	55KT-1	JTDA150A
	150	26.7	7.50	35	45	7	21	--	0.57	M216	MS2215
	JTIDS Burst = 6.4 us on, 6.6 us off repeated for 2.1 millisecond, overall duty as stated.										
TACAN 960-1215 MHz, Class C Common Base - Pulsed	15	3.0	7.00	40	40	20	5	10:1	1.00	55LT-1	TAN15
	75	12	8.00	50	40	20	5	30:1	0.60	55AZ-1	TAN75A
	90	13	8.40	50	38	10	10	--	0.80	M218	MS2209
	150	30	7.00	50	38	20	5	10:1	0.30	55AT-1	TAN150
	250	60	6.20	50	40	20	5	5:1	0.30	55AT-1	TAN250A
	250	40	8.00	50	38	20	5	--	0.28	M214	MS2267
	300	60	7.00	50	38	10	10	15:1	0.16	M216	MS2210
	300	60	7.00	50	45	20	5	5:1	0.15	55KT-1	TAN300
	350	60	7.60	50	38	10	10	15:1	0.16	M216	MS2272
	350	70	7.00	50	40	10	10	3:1	0.12	55ST-1	TAN350

Microsemi supports customer specifications and develops custom products.
Please contact factory for more information.

RADAR

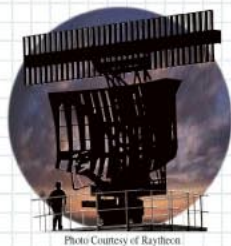


Photo Courtesy of Raytheon

- Products designed for each of the systems operating:
UHF 400 – 450 MHz, P-Band 890 – 1000 MHz, L-Band 1.2 – 1.4 GHz, S-Band 2.7 – 3.1 GHz, 3.1 – 3.4 GHz.
- Characterized to meet the system signal format on parameters such as: rise and fall time, pulse droop, gain spread, short pulse, long pulse and combinations, gain change vs. frequency, power saturation.
- Offering bipolar transistors for existing designs with the potential for SiC and GaN in the near future.

	Pout Min (W)	Pin Max (W)	Gain Min (dB)	Vcc (V)	η Typ (%)	Pulse Width (μ s)	Duty Cycle (%)	VSWR Load	θ_{jc} (°C/W)	Case Style	Part Number
UHF: 400-450 MHz, Class C, Common Emitter-Pulsed	300	33	9.6	40	50	250	10	20:1	0.20	M106	MS2176
	500	54	9.7	40	50	250	10	20:1	0.15	M102	MS2200
P-Band 890-1000 MHz	60	9.5	8	40	40	150	5	3:1	1	55AW-1	0910-60M
	150	23	8.1	48	40	150	5	3:1	0.48	55KT-1	0910-150M
	300	33	9.6	50	40	150	5	3:1	0.22	55KT-1	0910-300M
L-Band 1200-1400 MHz, Class C, Common Base-Pulsed	2	0.35	7.5	28	45	CW	100	10:1	14	55LT	1014-2
	6	1.2	7	28	40	CW	100	10:1	9	55LV	1014-6A
	12	2.5	7.3	28	40	CW	100	10:1	4.5	55LT	1014-12
	30	6	6.8	28	48	2000	20	3:1	2.00	55AW-1	1214-30
	32	5.3	7.8	36	45	5000	20	3:1	2.30	55AW-1	1214-32L
	55	12.3	6.5	28	45	2000	20	3:1	1.00	55AW-1	1214-55
	140	27	7.1	36	48	5000	20	3:1	0.55	55ST-1	1214-150L
	220	40	7.4	40	50	150	10	3:1	0.25	55ST-1	1214-220M
	270	42.7	8.0	50	45	100	10	3:1	0.22	55KT-1	1214-300
	300	40	8.7	40	55	150	10	3:1	0.29	55ST-1	1214-300M
L-Band 1480-1650 MHz, Class C, Common Base-Pulsed	20	3.5	8	36	40	200	10	3:1	1	55LV	1517-20M
	110	20.5	7.3	40	40	200	10	3:1	0.5	55AW-1	1517-110M
	250	50	7	40	40	200	10	3:1	0.25	55ST-1	1517-250M
S-Band 2700-3100MHz, Class C, Common Base-Pulsed	100	16	8	36	40	200	10	2:1	0.30	55KS-1	2731-100M
	125	17.6	8.5	36	50	100	10	2:1	0.30	55KS-1	2729-125
	150	21.7	8.3	38	50	50	4	2:1	0.30	55KS-1	2931-150
	170	24	8.5	36	50	100	10	2:1	0.30	55KS-1	2729-170
S-Band 3100-3400 MHz, Class C, Common Base-Pulsed	65	11.5	7.5	36	40	120	10	2:1	0.50	55KS-1	3134-65M

Microsemi supports customer specifications and develops custom products.
Please contact factory for more information.

MICROWAVE



- These transistors are industry standards for legacy systems and replacement parts for discontinued products made by other suppliers.
- Full series of parts covering low power to highest power output available.
- All use Gold metalization, glass passivation and in solder sealed packages for best reliability and long term operation.
- All products are functionally tested per the specification.

	Freq Range (MHz)	Pout Min (W)	Pin Max (W)	Gain Typ (dB)	η typ (%)	Vcc (V)	Cob Typ (pF)	VSWR load	θ_{jc} (°C/W)	Case Style	Part Number
2.0 GHz, Class C, Common Base	2000	1.0	0.125	9.5	40	28	4.0	30:1	35.0	55BT-1	2001
	2000	3.0	0.47	8.6	40	28	5.0	30:1	15.0	55BT-1	2003
	2000	3.0	0.50	7.8	35	28	9.5	--	8.0	M210	MS2003
	2000	5.0	0.80	8.5	40	28	7.5	30:1	8.5	55BT-1	2005
	2000	5.0	1.00	7.8	40	28	10	--	6.0	M210	MS3024
	2000	10.0	2.00	8.0	40	28	15.0	30:1	6.0	55BT-1	2010
2.3 GHz, Class C, Common Base	2300	1.5	0.24	8.5	40	20	4.0	30:1	31.0	55BT-1	2301
	2300	2.0	0.30	8.5	40	20	5.5	10:1	25.0	55BT-1	2302
	2300	4.0	0.63	8.5	40	20	7.0	10:1	17.0	55BT-1	2304
	2300	7.0	1.10	8.5	40	20	10.0	10:1	8.5	55BT-1	2307
3.0 GHz, Class C, Common Base	3000	1.0	0.20	8.5	30	28	4.0	30:1	35.0	55BT-1	3001
	3000	3.0	0.75	6.5	30	28	7.0	10:1	17.0	55BT-1	3003
	3000	5.0	1.60	5.5	30	28	--	9:1	7.0	55BT-1	3005

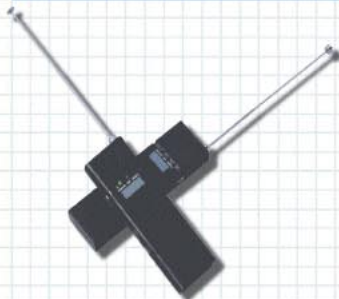
MICROWAVE BROADBAND



- Transistors available for all the standard operating frequency bands: 1.0 – 1.4 GHz, 1.4 – 1.7 GHz, 1.7 – 2.0 GHz and 2.0 – 2.4 GHz.
- Full series of parts for each band – low power drivers to high power output transistors, including highest power available on the market.
- All Gold Metalization and glass passivation for long term operation.
- Each part functionally tested over the specified frequency band.

	Freq Range (MHz)	Pout Min (W)	Pin Max (W)	Gain Typ (dB)	η typ (%)	Vcc (V)	Cob Typ (pF)	VSWR load	θ_{jc} (°C/W)	Case Style	Part Number
1000 - 1400 MHz, 28V, Class C, Common Base	1000 - 1400	6.0	1.2	7.0	40	28	6.5	10:1	9.0	55LV-1	1014-6A
	1000 - 1400	12.0	2.5	7.3	40	28	12.0	30:1	4.5	55LT-1	1014-12
1700 - 2000 MHz, Class C, Common Base	1600 - 1800	35.0	7.0	7.5	40	28	--	10:1	1.3	55AW-1	1618-35
	1700 - 1800	32.0	7.0	7.0	40	24	--	3:1	1.5	55AW-1	1718-32L
	1700 - 1900	20.0	5.0	6.5	38	28	--	4:1	2.6	55AW-1	1719-20
	1725 - 1850	35.0	6.23	8.0	50	28	--	4.5:1	1.8	55AR-1	1719-35
	1850 - 1950	35.0	7.0	7.5	40	28	--	3:1	1.3	55AW-1	1819-35
2000 - 2400 MHz, Class C, Common Base	2000 - 2100	25.0	5.0	7.5	50	24	--	3:1	3.0	55AW-1	2021-25
	2100 - 2400	12.0	2.25	7.5	42	22	--	9:1	4.0	55AW-1	2124-12L
	2200 - 2300	1.7	0.25	8.5	35	22	--	10:1	24.0	55LV-1	2223-1.7
	2200 - 2400	6.0	1.2	7.0	40	22	--	10:1	8.0	55LV-1	2224-6L
	2200 - 2500	3.5	0.5	8.5	40	24	7.0	10:1	17.0	55LV-1	2225-4L
	2300 - 2400	12.0	2.5	7.5	40	20	--	10:1	4.0	55AW-1	2324-12L
	2300 - 2400	20.0	4.0	7.5	40	24	--	10:1	3.0	55AW-1	2324-20
	2300 - 2400	25.0	5.0	7.0	35	24	--	3:1	2.5	55AT-1	2324-25
	2400 - 2470	25.0	4.4	7.5	49	24	--	3:1	2.5	55AP-1	2424-25

High Voltage MOSFETs can also be used (see page 31)



HF INDUSTRIAL/COMMUNICATIONS:

Single ended or balance transistors for Class AB/C operation from 2-175 MHz. Devices from 1 to 300 Watts CW or pulsed with operating voltages of 50 VDC. Supporting applications such as mobile and base station FM/SSB radios, high power amplifiers, industrial and medical RF power supplies.

VHF COMMUNICATIONS: Single ended and balanced transistors for common emitter Class C operation from 50-175 MHz. Devices from 1 to 150 Watts CW with Vcc of 12.5, 28 and 50 VDC for AM/FM mobile and base station applications.

UHF COMMUNICATIONS: Single ended and balanced transistors for common emitter Class C operation from 450 - 512 MHz. Devices from 1 to 45 Watts CW with Vcc of 12.5 VDC for FM mobile radio applications. Single ended and balanced transistors for common base Class C operation from 806 to 960 MHz. Devices from 1 to 60 Watts CW with Vcc of 24 VDC for FM base station applications. Single ended and balanced transistors for common emitter Class AB operation from 860 to 960 MHz. Devices from 1 to 150 Watts PEP with Vcc of 24 VDC for linear cellular base station applications.

MILITARY COMMUNICATIONS: Single ended and balanced transistors for common emitter Class A, AB, and C operation from 100-500 MHz. Devices from 1 to 125 Watts CW with Vcc of 28 VDC for aircraft, mobile, and base station applications.

HF/VHF/UHF COMMUNICATIONS

	Pout Min (W)	Pin Max (W)	Gain Typ (dB)	η Typ (%)	Vdd Typ (V)	Coss (pF)	VSWR Load	θ_{jc} (°C/W)	Case Style	Part Number
VDMOS, 2-175 MHz Class AB, Common Source	30	1.00	15	50	50	35	30:1	1.5	M113	VRF148A
	150	15.00	10	50	50	240	30:1	0.6	M174	VRF150
	150	6.00	14	50	50	220	30:1	0.6	M174	VRF151
	300	6.00	14	50	50	220	30:1	0.35	M208	VRF151G
	600	16.00	17	45	50	950	30:1	0.13	T2	VRF154FL
	600	16.00	21	45	50	950	30:1	0.13	T2	VRF157FL
	300	2.70	20	65	50	370	3:1	0.27	M177	VRF2933
	Pout Min (W)	Pin Max (W)	Gain Typ (dB)	η Typ (%)	Vcc Typ (V)	Cob Type (pF)	VSWR Load	θ_{jc} (°C/W)	Case Style	Part Number
HF 2-50 MHz, Class C, Common Emitter	20	0.65	15	60	12.5	100	20:1	2.20	M113	MS1227
	30	0.48	18	60	28	--	20:1	2.20	M113	MS1226
	75	3.80	14	60	12.5	350	20:1	2.20	M174	MS1001
	200	12.00	12	60	50	300	30:1	0.65	55HX-2	S200-50
VHF 100-175 MHz, Class C, Common Emitter	0.75	0.015	17	--	12.5	4	--	125.00	SO-8	SRF4427
	1	0.10	10	50	12.5	4	--	175.00	TO-39	2N4427
	1.4	0.10	12	50	7.5	6.0	20:1	35.00	M123	MS1403
	1.5	0.10	12	55	12.5	12	--	25.00	Pwr Macro	MRF553
	1.75	0.125	12	50	12.5	15	--	35.70	TO-39	MRF607
	2.5	0.20	11.5	50	7.5	19	20:1	11.60	M123	MS1401
	3	0.50	8	50	12.5	15	--	35.00	TO-39	2N6255
	4	0.25	12	50	12.5	20	--	22.00	TO-39	SD1127
	10	0.10	10	--	12.5	45	20:1	8.75	M135	SD1143
	10	0.10	10	--	12.5	45	20:1	8.75	M113	SD1143-01
	10	1.00	10	55	28	15	20:1	13.50	M135	SD1013
	10	1.00	10	55	28	15	20:1	13.50	M113	SD1013-03
	15	1.00	12	60	12.5	45	20:1	8.75	M122	MS1261
	15	3.50	6.3	60	12.5	10	20:1	5.6	M113	SD1014-06
	20	3.00	8.2	55	28	35	--	5.83	M113	MS1408
	20	3.00	8.2	60	28	35	20:1	5.80	M135	MS1406
	30	3.00	10	55	13.5	95	20:1	1.20	M135	MS1504
	30	3.00	10	--	12.5	120	10:1	1.20	M135	MS1336
	30	3.00	10	--	12.5	120	10:1	1.20	M113	MS1337
	30	10.60	5	55	13.5	150	20:1	1.70	M130	SD1019
	30	3.00	10	--	28	250	--	4.40	M135	SD1015
	30	3.00	10	55	13.5	95	20:1	1.20	M113	MS1505
	40	7.00	7.6	60	28	65	20:1	2.90	M135	SD1224

HF/VHF/UHF COMMUNICATIONS

	Pout Min (W)	Pin Max (W)	Gain Typ (dB)	η Typ (%)	Vcc (V)	Cob Type (pF)	VSWR Load	θ_{jc} (°C/W)	Case Style	Part Number
VHF 100-175 MHz, Class C, Common Emitter	40	5	9	55	13.6	95	20:1	1.20	M135	MS1506
	40	5	9	--	13.6	95	--	1.2	M113	MS1507
	40	14	4.5	70	12.5	200	10:1	2.20	M135	SD1018
	40	14	4.5	70	12.5	200		2.20	M113	SD1018-06
	60	12	7	55	28	80	20:1	2.30	M135	MS1329
	80*	10	9	65	27	75	30:1	2.00	55HT-2	VAM80
	100	25	6	50	28	150	--	0.75	M174	SD1019-05
	100	25	6	50	28	150	--	0.75	M174	MS1204
	100	25	6	--	12.5	390	10:1	0.65	M111	MS1003
	100	20	7.0	60	28	220	30:1	0.65	55HV-2	VMIL100
	* Peak Power (1kHz, 50%)	150	18	9.5	70	28	150	20:1	M174	MS1281
UHF 225-400 MHz, Class C, Common Emitter	3.0	0.2	11.8	60	28	4.5	30:1	16	55FT-2	UMIL3
	10	0.65	12	50	28	12	--	6.4	M123	MS1642P
	10	1.0	10	60	28	11.5	30:1	6.3	55FT-2	UMIL10
	10	1.0	10	50	28	11.5	10:1	6.3	55FU-2	UMIL10P
	25	3.2	8.9	50	28	22	5:1	2.5	55HV-2	UMIL25
	60	8.0	8.8	60	28	70	5:1	1.25	55HW-2	UMIL60
	70	10	8.5	50	28	65	20:1	0.8	M111	MS1511
	80	10	9.0	60	28	80	5:1	0.8	55HV-2	UMIL80
	100	20	7.0	60	28	100	--	0.70	M111	MS1503
	100	19	7.2	55	28	120	5:1	0.7	55HV-2	UMIL100
	100	16	8.0	55	28	120	4.5:1	0.7	55JU-2	UMIL100A
	125	25	8.5	60	28	70	5:1	0.65	55JT-2	0204-125
UHF 100-500 MHz, Class C, Common Emitter	50	7.0	8.5	55	28	52	5:1	1.25	55JT-2	0105-50
	100	28.2	5.5	55	28	100	5:1	0.67	M168	MS1509
UHF 470 MHz, Class C, General Purpose	1.5	0.12	11	60	12.5	5	--	25	Pwr Macro	MRF555
	2	0.2	10	--	12.5	10	--	35	M122	MS1402
	2	0.32	8	50	12.5	15	--	35	TO-39	SD1444
	3	0.34	9.5	50	12.5	12	--	35	TO-39	MS1649
	5	0.7	8.5	50	12.5	19	20:1	11.6	M122	MS1404
	5	0.5	10	60	12.5	15	--	11.6	M123	MS652S
	10	2	7	--	12.5	26	10:1	3.0	M122	MS1426
	10	2.5	6	--	12.5	30	--	4.7	M122	SD1146
	15	2.5	7.8	50	12.5	50	--	4.6	M142	MS1263
	15	2.7	7.5	--	12.5	50	20:1	4.6	M111	SD1429-03
	25	6	6.2	--	12.5	70	20:1	2.5	M111	SD1422
UHF 836-960 MHz, Class C, General Purpose	0.5	0.08	8	50	12.5	3	--	50	Macro-X	MRF559
	0.75	0.12	8	60	12.5	3	--	45	SO-8	MRF8372
	1.5	0.24	8	60	12.5	6	--	25	Pwr Macro	MRF557
	45	15	4.7	--	12.5	100	20:1	1.2	M142	MS1455

HF/VHF/UHF COMMUNICATIONS CLASS A/AB

	Pout Min (W)	Pin Max (W)	Gain min (dB)	η Typ (%)	Vcc (V)	Icq (mA)	VSWR Load	θ_{jc} (°C/W)	Case Style	Part Number
HF 2-30 MHz, Class AB, Common Emitter	100	7.9	11	50	12.5	150	20:1	0.6	M174	MS1051
	130	8.2	12	50	28	150	20:1	1.0	M174	MS1078
	150	6.0	14	50	50	100	20:1	0.75	M174	MS1007
	150	6.0	14	50	50	100	20:1	0.75	M164	MS1008
	220	13.9	12	50	28	750	20:1	0.7	M174	MS1076
	220	11.0	13	50	50	150	20:1	0.7	M174	MS1079
	250	10.0	14	50	50	150	20:1	0.4	M177	MS1004
	250	10.0	14	50	50	150	20:1	0.4	M177	MS1011

BROADCAST / TV



VHF TV BROADCAST: Single ended and balanced transistors for common emitter Class A and AB operation from 50 to 225 MHz. Devices from 0.5 to 250 Watts P_{SYNC} with V_{cc} of 28 to 32 VDC.

UHF TV BROADCAST: Single ended and balanced transistors for common emitter Class A and AB operation from 470 to 960 MHz. Devices from 0.5 to 150 Watts P_{SYNC} with V_{cc} of 28 VDC.

	Freq (MHz)	Pout Min (W)	Gain Min (dB)	Vcc (V)	Icq (A)	η Typ (%)	IMD Typ (dB)	VSWR Load	θ_{jc} (°C/W)	Case Style	Part Number
VHF TV 174-225 MHz, Class A/AB, Common Emitter	225	14	14	28	2.5	--	-55	--	1.5	M111	MS1277
	225	20	8	25	2.5	--	-50	--	1.2	M130	MS1279
	225	20	7.5	28	3.5	--	-50	--	1.2	M164	MS1280
	225	100	11	28	0.2	--	-50	--	1.2	M168	MS1278
	225	200	11	32	1.0	--	-50	--	0.45	M175	SD1485
UHF TV 470-860 MHz, Class A, Common Emitter	860	0.5	10.0	20	0.22	--	-60	30:1	22.0	55FT-2	UTV005
	860	1.0	10.0	20	0.44	--	-60	30:1	12.0	55FT-2	UTV010
	860	2.0	10.0	25	0.41	--	-60	30:1	10.0	55FT-2	UTV020
	860	4.0	8.5	25	0.85	--	-60	30:1	7.0	55FT-2	UTV040
	860	8.0	9.0	26.5	1.7	--	-58	3:1	2.5	55JV-2	UTV080
	860	12.0	8.9	26.5	1.7	--	-52	3:1	1.6	55JT-2	UTV120
	860	20.0	8.5	26.5	2.7	--	-48	3:1	1.2	55JV-2	UTV200
UHF TV 470-860 MHz Class AB, Common Emitter	860	100.0	8.5	28	0.3	55	--	5:1	0.6	55RT-2	UTV8100B
UHF 860-960 MHz Class A/AB, Common Emitter	860	0.50	9.5	20	0.22	--	-60	--	5.5	M122	MS1502
	860	1	10	20	0.44	--	-60	--	9	M122	MS1512
	860	2	8.5	25	0.45	--	-60	--	11	M122	MS1501
	860	4	7	25	0.85	--	-60	--	5.5	M122	MS1581
	860	14	8.5	25	1.65	--	-45	--	2.5	M156	MS1579
	860	25	9	25	3.2	--	-45	--	1.3	M173	MS1582
	860	30	7.5	24	0.06	50	-60	--	2.0	M142	MS1454
	860	150	6.5	28	2x0.5	45	--	--	0.55	M175	MS1533
	960	0.9	9.5	24	0.125	--	--	--	20	M123	SD1420-01
	960	30	7.5	24	0.15	--	--	--	3.0	M142	MS1453

GENERAL PURPOSE & SMALL SIGNAL



POWER DEVICES: Transistors for common emitter class A, B, and C operation up to 1 GHz. Devices with $P_{GAIN} > 8\text{dB}$, P_{OUT} up to 4 W with V_{CC} of 7.5 and 12 VDC for hand held and mobile predriver amplifier applications. Package styles include thru-hole metal cans, plastic Macro, and SO-8. End use examples include PA stage for hand-held radios, low power amplifier stages to drive high power amplifiers (HPA).

SMALL SIGNAL: Transistors for common emitter class A operation up to 1 GHz. Devices with $G_{max} > 10\text{dB}$, $NF < 2.5\text{dB}$ with V_{CC} of 5, 7.5, 10, 12 and 15 VDC for hand held and mobile applications. Use includes gain blocks, low noise amplifiers, and oscillators. Package styles include thru-hole metal cans, plastic Macro, SO-8, SOT-23, and SOT-143. End use examples include land/mobile and FRS radios (receivers and synthesizers), "invisible fence" radio dog collars, wireless alarms, and keyless entry.

POWER DEVICES
Up to 1 GHz, Class A, B, and C
Common Emitter

Freq (MHz)	Supply (V)	Pout (W)	Gain (dB)	Case Style	Packing	Part Number
175	12.5	1	10	TO-39	500 Units Bulk	2N4427
175	12.5	1	17	SO-8	500 Units Bulk	SRF4427
175	12.5	1.5	11.5	Pwr Macro	500 Units Bulk	MRF553
175	12.5	1.75	11.5	TO-39	500 Units Bulk	MRF607
175	12.5	3	7.8	TO-39	500 Units Bulk	2N6255
175	12.5	4	12	TO-39	500 Units Bulk	SD1127
400	28.0	1	10	TO-39	500 Units Bulk	2N3866
400	28.0	1	10	TO-39	500 Units Bulk	2N3866A
400	28.0	1	10	SO-8	500 Units Bulk	MRF3866
470	12.5	1.5	11	Pwr Macro	500 Units Bulk	MRF555
470	12.5	3	10	TO-39	500 Units Bulk	MS1649
470	12.5	2	8	TO-39	500 Units Bulk	SD1444
870	12.5	0.75	8	SO-8	500 Units Bulk	MRF8372
870	12.5	0.75	8	Pwr Macro	500 Units Bulk	MRF837
870	12.5	1.5	8	Pwr Macro	500 Units Bulk	MRF557

SMALL SIGNAL,
Up to 1 GHz, Class A
Common Emitter

Freq (MHz)	F _{tau} (MHz)	GNF (dB)	VCE (V)	I _c (mA)	NF min (dB)	Case Style	Part Number
100	1500	20	6	5	4.5	TO-72	2N5179
200	1200	12	15	50	--	TO-39	2N5109
200	1300	18	12	50	--	SO-8	MRF4427
200	1400	-	6	1.5	4.5	SOT-23	MMBR5179LT1
250	1400	13.5	25	50	--	TO-39	MRF545
250	1500	13.5	25	50	--	TO-39	MRF544
300	1000	15	15	35	5.5	TO-39	MRF5943C
300	1300	15	15	35	3.4	SO-8	MRF5943
300	3000	12	15	40	--	TO-39	MRF586
300	3000	10	15	60	2.5	TO-39	MRF517
400	1200	12	6	1	--	TO-72	2N5031
500	1300	20	5	25	2.5	TO-72	BFY90
500	1400	14	10	14	5	TO-72	2N6304
500	1600	13	10	12	5.5	TO-72	2N2857
500	4500	-	1.5	3.0	3.0	SOT-23	BFR92ALTI
500	4500	15	10	15	2.5	TO-72	MRF914
500	5000	14.5	10	50	2.0	Macro T	BFR96
500	5000	15.5	12	50	2.5	Macro X	MRF581
500	5000	15.5	12	50	2.5	Macro X	MRF581A
500	5000	15.5	12	50	2.0	SO-8	MRF5812
500	5000	16	5	30	1.9	Macro T	BFR91
500	5000	18	5	14	2.5	Macro T	BFR90
1000	4000	7	10	15	1.5	TO-72	MRF904
1000	6000	11	10	10	2.9	SOT-23	MMBR911LT1

LINEAR - CLASS A

- Class A driver transistors for applications ranging from 1 MHz to 2.3 GHz power levels from 0.25 Watts to 20 Watts
- All transistors utilize emitter ballasting and are tested under the full bias conditions for linearity, power gain and load mismatch tolerance.
- Many devices are in solder sealed packages for use in applications requiring high reliability

	Freq Range (MHz)	Pout Min (W)	Pin Max (W)	Gain Typ (dB)	Vcc (V)	Icq (A)	Cob Typ (pF)	VSWR load	θ_{jc} ($^{\circ}$ C/W)	Case Style	Part Number
10-500 MHz, Class A, Common Emitter	1-500	0.5	.02	12	12.5	.25	-	30:1	33	55AZ-2	MPA201
500-1000 MHz, Class A, Common Emitter	1000	0.5	.08	9.0	20	.14	2.0	30:1	33	55ET-2	1A5
	1000	1.5	0.20	9.5	20	.22	3.8	30:1	29	55FT-2	10A015
	1000	3.0	0.50	9.0	20	.44	7.3	30:1	12.5	55FT-2	10A030
	1000	6.0	0.95	8.5	20	.88	10.8	10:1	8.3	55FT-2	10A060
500-1000 MHz, Class A, Common Emitter, Internal Prematch	1000	5.0	0.5	10.0	20	1.0	16.0	30:1	7.0	55CT-2	10AM05
	1000	20	3.0	8.0	20	2.8	40	30:1	1.5	55AT-2	10AM20
1.0-2.0 GHz, Class A, Common Emitter (Operational from DC to 2.0 GHz)	2000	0.11	0.012	9.0	18	.05	2.5	20:1	45	M210	MSC80064
	2000	0.5	0.10	7.0	20	.14	2.0	30:1	33	55ET-2	2A5
	2000	0.8	0.15	7.0	20	.18	2.0	30:1	33	55EU-2	2A8
	2000	1.0	0.20	7.0	18	.22	5.0	15:1	17	M210	MS3011
2.0-2.3 GHz, Class A, Common Emitter (Operational from DC to 2.3 GHz)	2300	0.3	0.03	10.0	15	.10	2.5	9:1	45	55BT-2	23A003
	2300	0.5	0.07	9.5	20	.12	2.4	30:1	35	55BT-2	23A005
	2300	0.8	0.14	9.5	20	.14	3.0	10:1	35	55BT-2	23A008
	2300	1.7	0.34	7.6	20	.27	4.8	30:1	16	55BT-2	23A017
	2300	2.5	0.60	6.5	20	.42	6.5	10:1	11	55BT-2	23A025
	2300	1.0	0.16	10.0	15	.20	3.4	30:1	30	55BT-2	80143

COMMUNICATIONS LINEAR

- Broadband, High Power Class AB – linear transistor
- Highest power output covering the full range 500 – 1000 MHz.

	Freq Range (MHz)	Pout Min (W)	Pin Max (W)	Gain Typ (dB)	Vcc (V)	Icq (A)	η Typ (%)	VSWR Load	θ_{jc} ($^{\circ}$ C/W)	Case Style	Part Number
500 - 1000 MHz, Class AB, Common Emitter	1000	50	10	7.0	28	0.1	50	30:1	1.4	55AV-2	0510-50A

BIAS DEVICES

- Designed for use in the biasing of high power silicon transistors
- Feature excellent thermal tracking to provide the highest performance over the entire operating temperature range.

Bias Current	Resistance (Ohm)	Case Style	Part Number	Bias Current	Resistance (Ohm)	Case Style	Part Number
0.35	1.0	55FV	BYI-1	0.35	1.0	55FU	BYI-1Z
0.35	1.0	55GV	BYI-1F	0.35	1.0	55LU	BYI-1T
TO 0.35	1.0	55GU	Z0-28F				

Industrial, Scientific, Medical (ISM) & HF Communications

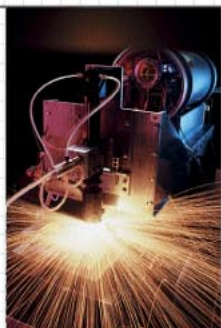
RF Power MOSFETs are optimized for high voltage power applications up to 150 MHz. The die geometry has been optimized for high RF power efficiency and gain.

The special RF Power TO-247 package uses an internal isolation substrate to create a common source configuration. The source is directly connected to the center pin and heatsink tab; no insulator is needed. This provides maximum thermal efficiency without the expense and assembly problems of drain isolation. Symmetric wire bonding schemes inside insure that both pin-out versions of each device are perfect mirror image pairs. This configuration facilitates the layout of push-pull and parallel pairs for circuit board symmetry and separation of input and output sections.

New Packages... The new T2 and T3 flangeless packages offer superior performance in cost effective flangeless packages. New, Driver IC and Hybrid w/ MOSFET + Driver. Discrete driver capable of 30 MHz, Class C-E operation. Hybrid includes a 13A, 1000V RF MOSFET.

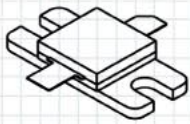
Highest Voltage Operation... Historically, all RF Power MOSFETs were operated at supply voltages of 50V or less. This limitation has been removed by combining our high voltage MOSFET technology with RF-specific die geometries. RF amplifier operation is now possible from 50 to 300 volts.

Why Higher Voltage... Higher V_{DD} means higher load impedance. For 150W output from a 50V supply the load impedance is only 8 ohms. At 125V, the load impedance is 50 ohms. The higher impedance allows simpler transformers and combiners. Paralleled devices can still operate into reasonable and convenient impedances. Increasing the operating voltage also lowers the DC current required for any given power output, reducing the size, weight and cost of other system components.

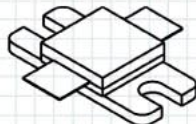


Pout (W)	Freq. (MHz)	V _{DD} /BV _{DSS} (V)	θJC (°C/W)	Package Style	Part Number	Class of Operation
85	100	125V/500V	0.76	TO-247CS	ARF449A/B	C-E
100	100	125V/500V	0.70	TO-247CS	ARF463A/B	A-E
	100	125V/500V	0.70	TO-247CS	ARF463AP1/BP1	A-E
115	65	250V/1kV	0.55	TO-247CS	ARF446	C-E
	65	250V/1kV	0.55	TO-247CS	ARF447	C-E
	65	125V/500V	0.55	TO-247CS	ARF448A/B	C-E
125	60	125V/500V	0.50	TO-247CS	ARF460A/B	A-E
	60	250V/1kV	0.50	TO-247CS	ARF461A/B	A-E
	65	300V/1.2kV	0.50	TO-247CS	ARF465A/B	A-E
150	100	125V/500V	0.70	M174	ARF520	A-E
	150	165V/500V	0.60	M174	ARF521	A-E
300	130	125V/500V	0.35	M208	ARF473	A-E
	130	160V/500V	0.35	T3A	ARF475FL	A-E
300	45	250V/1kV	0.35	TO-264	ARF466A/B	A-E
325	45	250V/1kV	0.27	T2	ARF466FL	A-E
750	25	250V/1000V	0.13	T2	ARF1519	A-E
750	40	125V/500V	0.12	T1	ARF1500	A-E
	40	250V/1kV	0.12	T1	ARF1501	A-E
	30	300V/1.2kV	0.12	T1	ARF1505	A-E
750	40	400V/1000V	0.12	T1	ARF1510	D
	40	380V/500V	0.12	T1	ARF1511	D
NEW DRIVER and RF MOSFET with DRIVER HYBRID						
50	30	25V	1.2	T3B	DRF100	D-E
600	30	250V/1kV	1.2	T2B	DRF1200	D-E

CASE STYLES



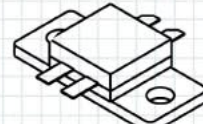
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55AR



55AT



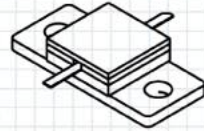
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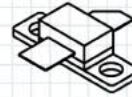
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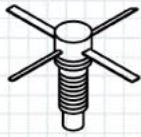
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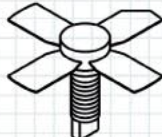
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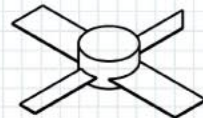
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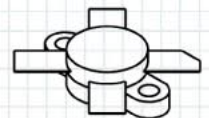
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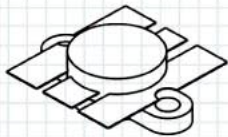
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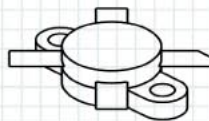
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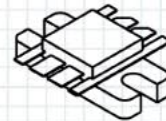
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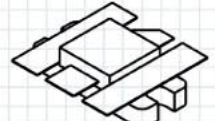
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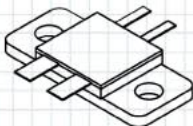
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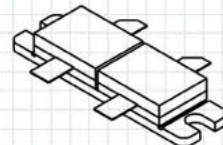
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55KT



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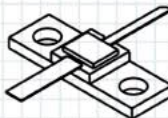
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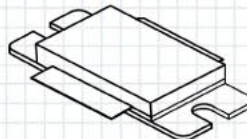
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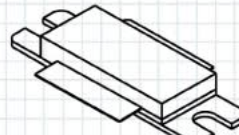
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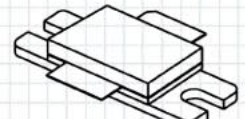
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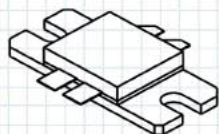
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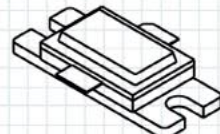
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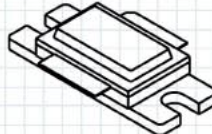
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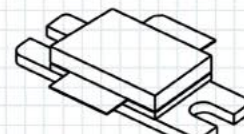
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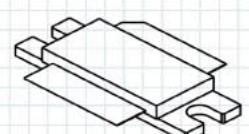
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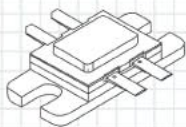
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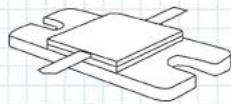
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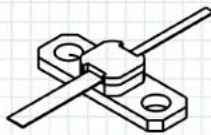
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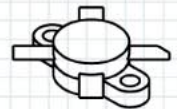
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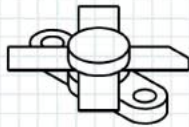
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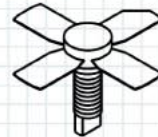
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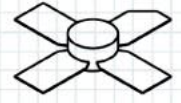
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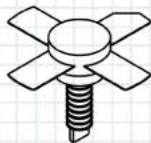
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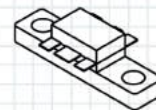
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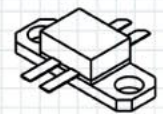
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M138



M142



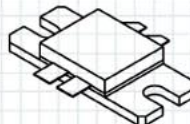
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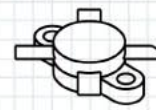
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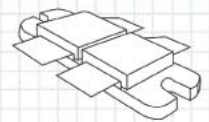
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M173



M174



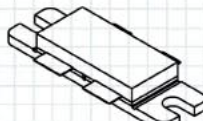
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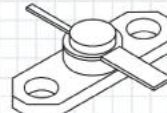
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M198



M208



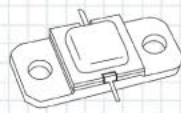
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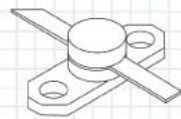
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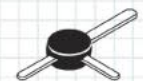
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M220



M222



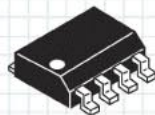
Macro T



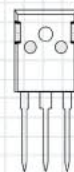
Macro X



Power Macro



SO-8



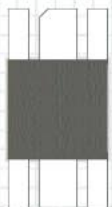
TO-247



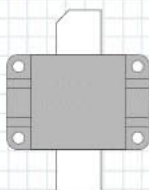
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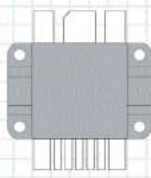
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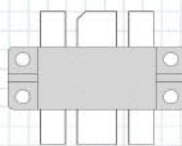
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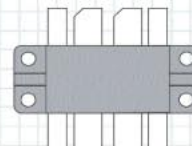
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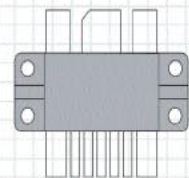
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T3



T3A



T3B



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