

MRF492
MRF492A

The RF Line

NPN SILICON RF POWER TRANSISTOR

... designed for 12.5 volt low band VHF large-signal power amplifier applications in commercial and industrial FM equipment.

- Specified 12.5 V, 50 MHz Characteristics —
Output Power = 70 W
Minimum Gain = 11 dB
Efficiency = 50%
- Load Mismatch Capability at High Line and RF Overdrive

70 W 50 MHz

RF POWER TRANSISTOR

NPN SILICON

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIMENSIONS		INCHES		
MIN	MAX	MIN	MAX	
A	24.39	25.14	0.880	0.980
B	11.82	12.86	0.465	0.510
C	5.82	6.35	0.229	0.250
D	5.08	5.48	0.215	0.215
E	2.14	2.78	0.085	0.110
H	3.05	4.52	0.120	0.178
J	0.89	0.12	0.035	0.005
K	11.83	—	0.465	—
M	40° NOM	40° NOM	—	—
N	2.54	3.30	0.100	0.130
P	6.35	6.07	0.250	0.240
U	18.29	18.54	0.720	0.728

STYLE 1:
PIN 1: EMITTER
2: BASE
3: EMITTER
4: COLLECTOR

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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	18	Vdc
Collector-Base Voltage	V _{CBO}	36	Vdc
Emitter-Base Voltage	V _{EBO}	4.0	Vdc
Collector-Current — Continuous	I _C	20	Adc
Total Device Dissipation @ T _C = 25°C (1) Derate above 25°C	P _D	250 1.43	Watts W/°C
Storage Temperature Range	T _{stg}	-65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case (2)	R _{θJC}	0.7	°C/W

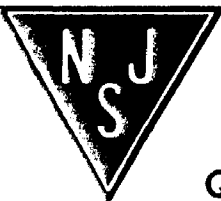
(1) These devices are designed for RF operation. The total device dissipation rating applies only when the devices are operated as RF amplifiers.
(2) Thermal Resistance is determined under specified RF operating conditions by infrared measurement techniques.

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIMENSIONS		INCHES		
MIN	MAX	MIN	MAX	
A	12.05	12.25	0.475	0.490
B	10.81	10.80	0.425	0.425
C	10.80	12.73	0.425	0.500
D	5.08	5.97	0.215	0.235
E	2.54	—	0.100	—
F	0.89	0.10	0.035	0.005
G	12.05	—	0.475	—
H	1.27	1.59	0.050	0.063
I	40° NOM	—	—	—
J	2.54	3.30	0.100	0.130
K	6.35	6.07	0.250	0.240
L	18.29	18.54	0.720	0.728

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ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage ($I_C = 100 \text{ mA dc}$, $I_B = 0$)	$V_{(BR)CEO}$	18	—	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 50 \text{ mA dc}$, $V_{BE} = 0$)	$V_{(BR)CES}$	38	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10 \text{ mA dc}$, $I_C = 0$)	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current ($V_{CE} = 13.6 \text{ Vdc}$, $V_{BE} = 0$)	I_{CES}	—	—	20	mA dc
ON CHARACTERISTICS					
DC Current Gain ($I_C = 5.0 \text{ A dc}$, $V_{CE} = 5.0 \text{ Vdc}$)	hFE	10	—	150	—
DYNAMIC CHARACTERISTICS					
Output Capacitance ($V_{CB} = 15 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{ob}	—	275	450	pF
FUNCTIONAL TESTS					
Common-Emitter Amplifier Power Gain ($V_{CC} = 12.5 \text{ Vdc}$, $P_{out} = 70 \text{ W}$, $f = 50 \text{ MHz}$)	G_{PE}	11	13	—	dB
Collector Efficiency ($V_{CC} = 12.5 \text{ Vdc}$, $P_{out} = 70 \text{ W}$, $f = 50 \text{ MHz}$)	η	50	—	—	%

FIGURE 1 — 50 MHz TEST CIRCUIT

