

# New Jersey Semi-Conductor Products, Inc.

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## 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

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	18	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	36	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	4.0	Vdc
Collector-Current — Continuous	I <sub>C</sub>	20	Adc
Total Device Dissipation @ T <sub>C</sub> = 25°C (1)	P <sub>D</sub>	250	Watts
Derate above 25°C		1.43	W/ <sup>o</sup> C
Storage Temperature Range	T <sub>SIG</sub>	-65 to +150	°C

#### THERMAL CHARACTERISTICS

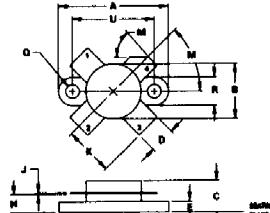
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case (2)	R <sub>θJC</sub>	0.7	°C/W

- (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.

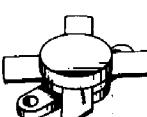
70 W 50 MHz

RF POWER  
TRANSISTOR

NPN SILICON



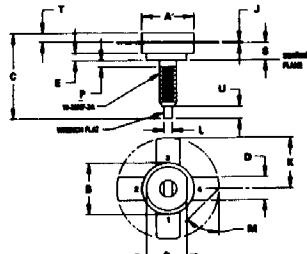
NOTES  
1. DIMENSIONING AND TOLERANCING PER  
ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.



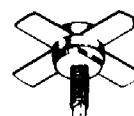
MRF492

	IN MILLIMETERS	IN INCHES	
A	26.20	1.031	MIN.
B	11.02	0.433	MIN.
C	6.92	0.273	MIN.
D	5.00	0.200	MIN.
E	3.00	0.118	MIN.
F	3.00	0.118	MIN.
G	0.98	0.038	MIN.
H	11.00	—	MIN.
I	—	0.450	MAX.
J	2.00	0.079	MIN.
K	2.00	0.079	MIN.
L	16.25	0.638	MAX.
M	16.25	0.638	MAX.
N	—	0.720	MAX.

MRF492



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

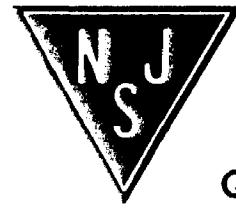


MRF492A

	IN MILLIMETERS	IN INCHES	
A	26.20	1.031	MIN.
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C	6.92	0.273	MIN.
D	5.00	0.200	MIN.
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H	11.00	—	MIN.
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J	2.00	0.079	MIN.
K	2.00	0.079	MIN.
L	16.25	0.638	MAX.
M	16.25	0.638	MAX.
N	—	0.720	MAX.
O	—	0.720	MAX.
P	—	1.02	MAX.
Q	3.00	0.118	MIN.
R	3.00	0.118	MIN.
S	3.00	0.118	MIN.
T	3.00	0.118	MIN.

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Quality Semi-Conductors



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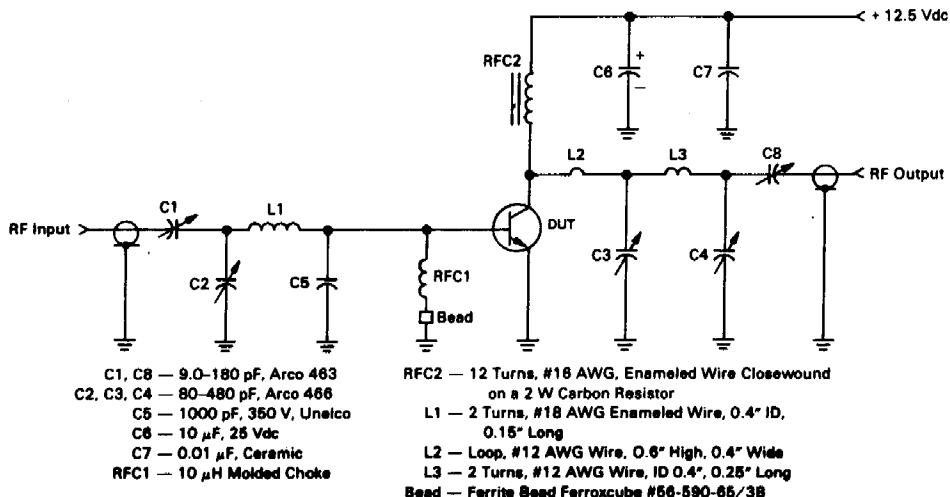
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## MRF492, MRF492A

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Breakdown Voltage ( $I_C = 100 \text{ mA}_\text{dc}, I_B = 0$ )	$V_{(\text{BR})\text{CEO}}$	18	—	—	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 50 \text{ mA}_\text{dc}, V_{BE} = 0$ )	$V_{(\text{BR})\text{CES}}$	38	—	—	Vdc
Emitter-Base Breakdown Voltage $I_E = 10 \text{ mA}_\text{dc}, I_C = 0$	$V_{(\text{BR})\text{EBO}}$	4.0	—	—	Vdc
Collector Cutoff Current ( $V_{CE} = 13.6 \text{ Vdc}, V_{BE} = 0$ )	$I_{\text{CES}}$	—	—	20	mA <sub>d</sub> c
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 5.0 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$ )	$h_{FE}$	10	—	150	—
<b>DYNAMIC CHARACTERISTICS</b>					
Output Capacitance ( $V_{CB} = 15 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$ )	$C_{ob}$	—	275	450	pF
<b>FUNCTIONAL TESTS</b>					
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 ( $V_{CC} = 12.5 \text{ Vdc}, P_{out} = 70 \text{ W}, f = 50 \text{ MHz}$ )	$\eta$	50	—	—	%

FIGURE 1 — 50 MHz TEST CIRCUIT



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