

NPN Silicon RF Power Transistors

**MRF652
MRF652S**

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	16	Vdc
Collector-Base Voltage	V_{CBO}	36	Vdc
Emitter-Base Voltage	V_{EBO}	4.0	Vdc
Collector Current --- Continuous	I_C	2.0	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	25 143	Watts mW/ $^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$
Operating Junction Temperature	T_J	200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	7.0	$^\circ\text{C/W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 25 \text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	16	---	---	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 25 \text{ mAdc}$, $V_{BE} = 0$)	$V_{(BR)CES}$	36	---	---	Vdc
Collector-Base Breakdown Voltage ($I_C = 25 \text{ mAdc}$, $I_E = 0$)	$V_{(BR)CBO}$	36	---	---	Vdc
Emitter-Base Breakdown Voltage ($I_E = 5.0 \text{ mAdc}$, $I_C = 0$)	$V_{(BR)EBO}$	4.0	---	---	Vdc
Collector Cutoff Current ($V_{CE} = 15 \text{ Vdc}$, $V_{BE} = 0$)	I_{CES}	---	---	1.0	mAdc

ON CHARACTERISTICS

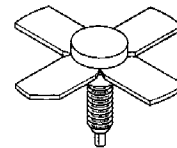
DC Current Gain ($I_C = 200 \text{ mAdc}$, $V_{CE} = 5.0 \text{ Vdc}$)	h_{FE}	10	---	150	---
Characteristic	Symbol	Min	Typ	Max	Unit

DYNAMIC CHARACTERISTICS

Output Capacitance ($V_{CB} = 15 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{ob}	---	9.5	15	pF
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FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain ($V_{CC} = 12.5 \text{ Vdc}$, $P_{out} = 5.0 \text{ W}$)	$f = 512 \text{ MHz}$ $f = 870 \text{ MHz}$	G_{pe}	10 ---	11 6.0	---	dB
Collector Efficiency ($V_{CC} = 12.5 \text{ Vdc}$, $P_{out} = 5.0 \text{ W}$, $f = 512 \text{ MHz}$)		η	60	65	---	%
Load Mismatch ($V_{CC} = 15.5 \text{ Vdc}$, $P_{in} = 500 \text{ mW}$, $f = 512 \text{ MHz}$, VSWR = 30:1, At All Phase Angles)		ψ	No Degradation in Output Power			



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