

MRF641

15 W, 470 MHz
CONTROLLED Q
RF POWER
TRANSISTOR
NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CE0}	16	Vdc
Collector-Base Voltage	V_{CBO}	36	Vdc
Emitter-Base Voltage	V_{EBC}	4.0	Vdc
Collector Current — Continuous	I_C	3.0	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	43.7 0.25	Watts $\text{W}/^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	4.0	$^\circ\text{C}/\text{W}$

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 ($I_C = 20\text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	16	—	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 20\text{ mAdc}$, $V_{BE} = 0$)	$V_{(BR)CES}$	36	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 5.0\text{ mAdc}$, $I_C = 0$)	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current ($V_{CE} = 15\text{ Vdc}$, $V_{BE} = 0$, $T_C = 25^\circ\text{C}$)	I_{CES}	—	—	5.0	mAdc

ON CHARACTERISTICS

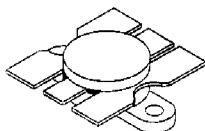
DC Current Gain ($I_C = 1.0\text{ Adc}$, $V_{CE} = 5.0\text{ Vdc}$)	h_{FE}	30	70	150	—
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DYNAMIC CHARACTERISTICS

Output Capacitance ($V_{CE} = 12.5\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{ob}	—	40	60	pF
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FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain ($V_{CC} = 12.5\text{ Vdc}$, $P_{out} = 15\text{ W}$, $f = 470\text{ MHz}$)	G_{ps}	7.8	8.5	—	dB
Collector Efficiency ($V_{CC} = 12.5\text{ Vdc}$, $P_{out} = 15\text{ W}$, $f = 470\text{ MHz}$)	η	55	60	—	%
Output Mismatch Stress ($V_{CC} = 16\text{ Vdc}$, $P_{in} = 3.0\text{ W}$, $f = 470\text{ MHz}$, VSWR = 20:1, All Phase Angles)	ψ	No Degradation in Output Power			



CASE 316-01,



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