

The RF Line

PNP Silicon

High-Frequency Transistor

... designed for amplifier, oscillator or frequency multiplier applications in industrial equipment. Suitable for use as a Class A, B or C output driver or pre-driver stages in VHF and UHF.

- Low Cost SORF Plastic Surface Mount Package
- Guaranteed RF Specification — $|S_{21}|^2$
- S-Parameter Characterization
- Tape and Reel Packaging Options Available by adding suffix:
R1 suffix = 500 units per reel
R2 suffix = 2,500 units per reel

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	-30	V
Collector-Base Voltage	V_{CBO}	-30	V
Emitter-Base Voltage	V_{EBO}	-3.0	V
Collector Current — Continuous	I_C	-500	mA
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	°C

DEVICE MARKING

MRF5583 = 5583

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 8.0	Watt mW/°C
Storage Temperature	T_{stg}	150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	125	°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 ($I_C = -10\text{ mA}$)	$V_{(BR)CEO}$	-30	—	—	V
Collector-Base Breakdown Voltage ($I_C = -10\text{ }\mu\text{A}$)	$V_{(BR)CBO}$	-30	—	—	V
Emitter-Base Breakdown Voltage ($I_E = -100\text{ }\mu\text{A}$)	$V_{(BR)EBO}$	-3	—	—	V
Collector Cutoff Current ($V_{CB} = -20\text{ V}$)	I_{CBO}	—	—	-1.0	μA
Emitter Cutoff Current ($V_{EB} = -2.0\text{ V}$)	I_{EBO}	—	—	-0.5	μA

ON CHARACTERISTICS

DC Current Gain ($I_C = -40\text{ mA}, V_{CE} = -2.0\text{ V}$) ($I_C = -100\text{ mA}, V_{CE} = -2.0\text{ V}$) ($I_C = -300\text{ mA}, V_{CE} = -5.0\text{ V}$)	h_{FE}	20 25 15	— — —	— 100 —	—
Collector-Emitter Saturation Voltage ($I_C = -100\text{ mA}, I_B = -10\text{ mA}$)	$V_{CE(sat)}$	—	—	0.8	V
Base-Emitter On Voltage ($I_C = -100\text{ mA}, V_{CE} = -2.0\text{ V}$)	$V_{BE(on)}$	—	—	1.8	V

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product ($I_C = -35\text{ mA}, V_{CE} = -15\text{ V}, f = 100\text{ MHz}$)	f_T	—	2100	—	MHz
Insertion Gain ($V_{CE} = -15\text{ V}, I_C = -35\text{ mA}, f = 250\text{ MHz}$)	$ S_{21} ^2$	12.5	15.5	—	dB

MRF5583

$I_C = -500\text{ mA}$
SURFACE MOUNT
HIGH-FREQUENCY
TRANSISTOR
PNP SILICON



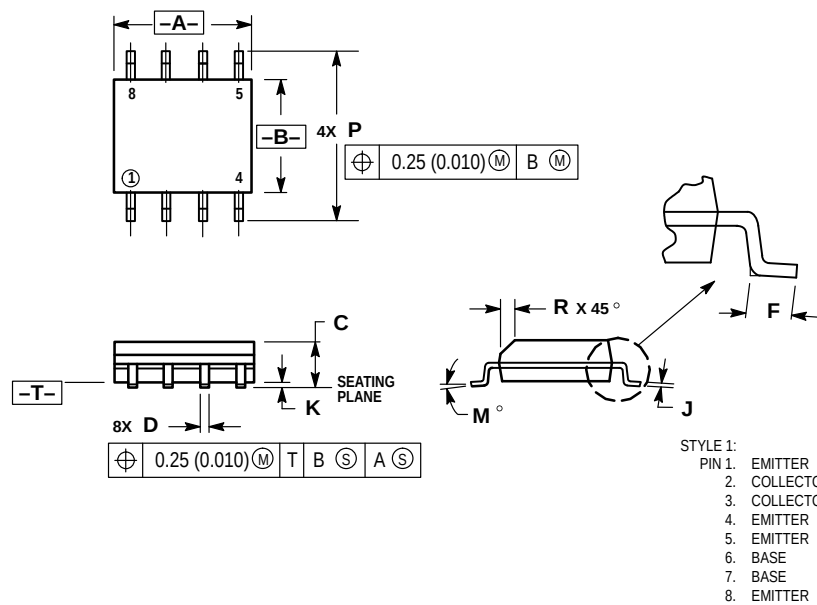
CASE 751-05, STYLE 1
(SO-8)



V_{CE} (Volts)	I_C (mA)	f (MHz)	S_{11}		S_{21}		S_{12}		S_{22}	
			$ S_{11} $	ϕ	$ S_{21} $	ϕ	$ S_{12} $	ϕ	$ S_{22} $	ϕ
-15	-35	10	0.47	-57	64.7	155	0.01	60	0.83	-26
		30	0.59	-116	42.2	126	0.02	44	0.56	-58
		50	0.63	-140	28.8	113	0.02	39	0.39	-74
		70	0.64	-151	21.4	105	0.02	42	0.30	-82
		100	0.65	-161	15.4	97	0.02	45	0.24	-80
		300	0.67	179	5.23	79	0.05	58	0.13	-109
		500	0.67	168	3.11	66	0.07	60	0.20	-114
		700	0.67	160	2.24	57	0.09	60	0.24	-116
		1000	0.66	146	1.54	44	0.13	60	0.30	-123

Table 1. Common Emitter S-Parameters

PACKAGE DIMENSIONS



CASE 751-05
ISSUE M

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MRF5583/D

