

# 2N3137(SILICON)

## MM1803



NPN silicon annular transistors for large signal VHF and UHF applications.

### CASE 31 (TO-5)

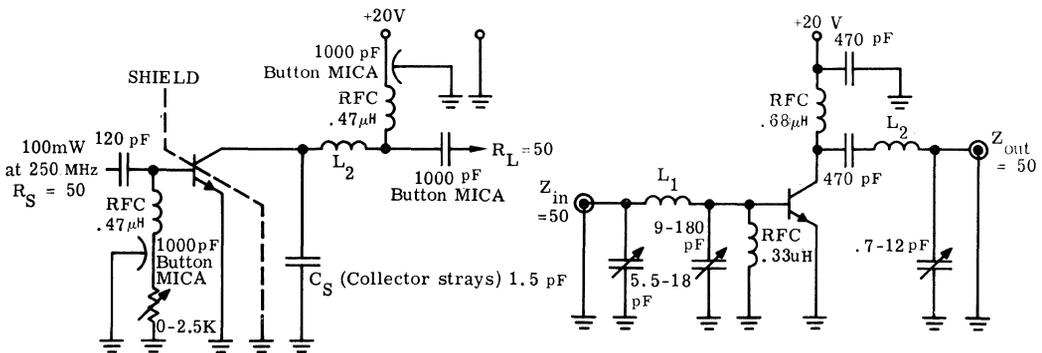
Collector connected to case

### MAXIMUM RATINGS

Rating	Symbol	2N3137	MM1803	Units
Collector-Base Voltage	$V_{CB}$	40	50	Vdc
Collector-Emitter Voltage	$V_{CEO}$	20	25	Vdc
Emitter-Base Voltage	$V_{EB}$	4.0	5.0	Vdc
Collector Current (Continuous)	$I_C$	150	150	mAdc
Power Dissipation @25° C Case Temperature @25° C Ambient Temperature	$P_D$	2.0 0.8		Watts
Operating Junction Temperature Storage Temperature Range	$T_J, T_{stg}$	-65 to +200		°C
Thermal Resistance Junction to Case	$\theta_{JC}$	87.5		°C/Watt
Thermal Resistance Junction to Ambient	$\theta_{JA}$	153		°C/Watt

250 MHz POWER GAIN TEST CIRCUIT (2N3137)

250 MHz POWER GAIN TEST CIRCUIT (MM1803)



$L_1 = 3/4$  turn No. 14 tinned wire  $3/8''$  ID

$L_2 = .075 \mu H$  (5.5 turns #16ga. ID =  $3/16''$  length  $1/2''$ )

$L_2 = 4$  turns No. 18 tinned wire  $1/4''$  ID  $7/16''$  long

**2N3137, MM1803 (Continued)**

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

Characteristic		Symbol	Min	Typical	Max	Unit
Collector-Base Breakdown Voltage $I_C = 0.1\text{mA}, I_E = 0$	2N3137 MM1803	$V_{CBO}$	40 50			Vdc
Collector-Emitter Open Base Sus. Voltage $I_C = 15\text{mA}, I_B = 0$	2N3137 MM1803	$V_{CEO(sus)}$	20 25			Vdc
Collector Cutoff Current $V_{CB} = 20\text{Vdc}, I_E = 0, T_C = +150^\circ\text{C}$		$I_{CBO}$			50	$\mu\text{A}$
Collector Cutoff Current $V_{CB} = 20\text{Vdc}, I_E = 0$		$I_{CBO}$			.05	$\mu\text{A}$
Emitter-Base Breakdown Voltage $I_E = 100\mu\text{A}, I_C = 0$	2N3137 MM1803	$V_{EBO}$	4.0 5.0			Vdc
DC Current Gain $V_{CE} = 5\text{Vdc}, I_C = 50\text{mA}$	2N3137 MM1803	$h_{FE}$	20 40		120 160	
Collector-Emitter Saturation Voltage $I_C = 50\text{mA}, I_E = 5\text{mA}$		$V_{CE(sat)}$			0.3	Vdc
Small Signal Current Gain $V_{CE} = 10\text{Vdc}, I_C = 50\text{mA}, f = 100\text{MHz}$		$ h_{fe} $	5.0			
Common-base Output Capacitance $V_{CB} = 10\text{Vdc}, I_C = 0, f = 100\text{kHz}$		$C_{ob}$			3.5	pF
Power Output		$P_{out}$	400	600		mWatts
Power Gain $P_{in} = 100\text{mw}, f = 250\text{MHz}$	2N3137	$G_e$	6.0	7.7		dB
Efficiency $V_{CE} = 20\text{Vdc}$		$\eta$	40	65		%
Power Output		$P_{out}$	560	700		mWatts.
Power Gain $P_{in} = 100\text{mw}, f = 250\text{MHz}$	MM1803	$G_e$	7.5	8.5		db
Efficiency $V_{CE} = 20\text{V}$		$\eta$	45	60		%

\*Pulse Width  $\approx 300\ \mu\text{s}$ , Duty cycle = 1%