

SOT-523 Plastic-Encapsulate Transistors

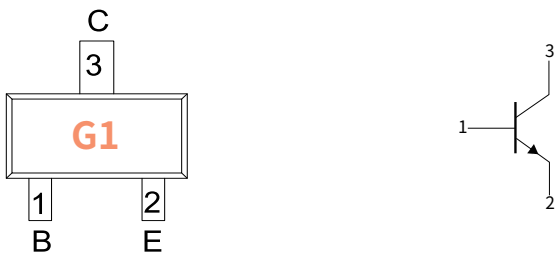
Features

- Complimentary to MMBT5401
- Ideal for medium power amplification and switching

Mechanical Data

- Case: SOT-523
- Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Collector-Emitter Voltage

V_{CEO} 160V

Collector Current

0.6 Ampere



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-523	R1	0.0025	3000	15000	150000	7"

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V _{CBO}	V	180
Collector-Emitter Voltage	V _{CEO}		160
Emitter-Base Voltage	V _{EBO}		6
Collector Current	I _C	A	0.6
Collector Power Dissipation	P _C	mW	200
Storage temperature	T _{stg}	°C	-55 ~+150
Junction temperature	T _j	°C	-55 ~+150

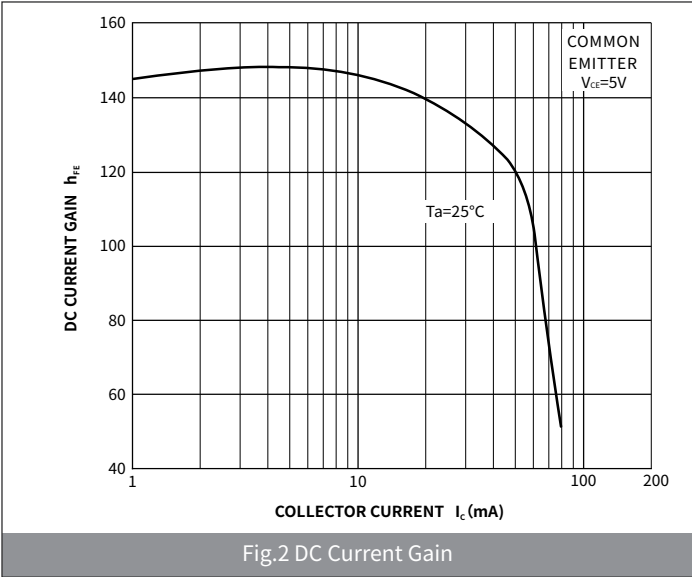
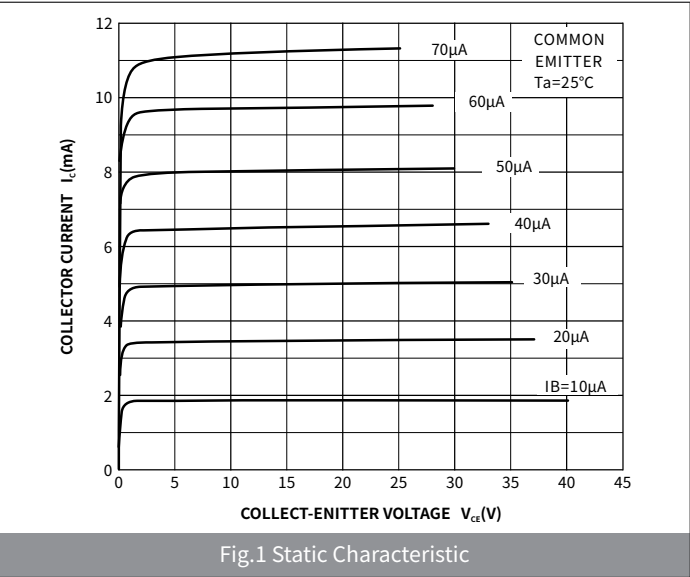
Electrical Characteristics (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition	Min	Type	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=100\mu A, I_E=0$	180	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=1mA, I_B=0$	160	—	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=10\mu A, I_C=0$	6	—	—
Collector cut-off current	I_{CBO}	nA	$V_{CB}=120V, I_E=0$	—	—	50
Emitter-Base cut-off current	I_{EBO}		$V_{EB}=4.0V, I_C=0$	—	—	50
DC Current Gain	$h_{FE(1)}$	—	$I_C=1mA, V_{CE}=5.0V$	80	—	—
	$h_{FE(2)}$		$I_C=10mA, V_{CE}=5.0V$	100	—	300
	$h_{FE(3)}$		$I_C=50mA, V_{CE}=5.0V$	50	—	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=10mA, I_B=1mA$	—	—	0.15
			$I_C=50mA, I_B=5mA$	—	—	0.2
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		$I_C=10mA, I_B=1mA$	—	—	1
			$I_C=50mA, I_B=5mA$	—	—	1
Collector output capacitance	C_{ob}	pF	$V_{CB}=10V, I_E=0, f=1MHz$	—	—	6
Base input capacitance	C_{ib}	pF	$V_{BE}=0.5V, I_C=0, f=1MHz$	—	—	20
Noise figure	NF	dB	$V_{CE}=5.0V, I_C=0.25mA, f=10Hz$ to $15.7KHz, R_s=1k\Omega$	—	—	8

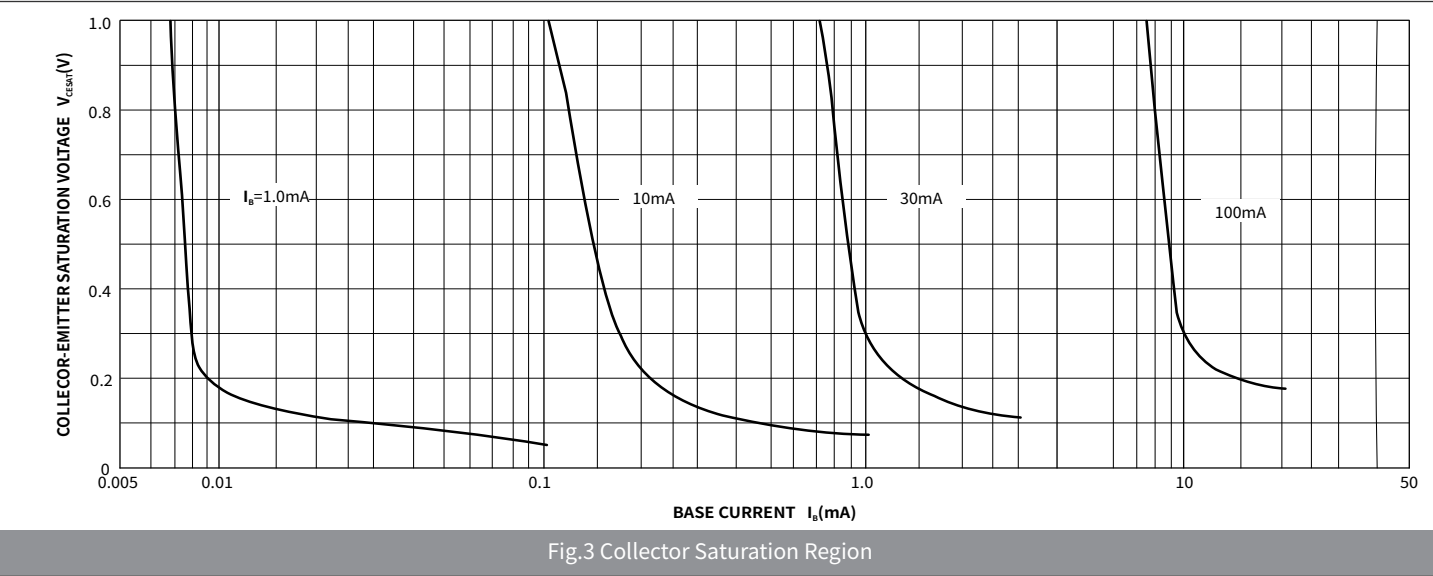
Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f_T	$I_C=10mA, V_{CE}=10V, f=100MHz$	MHz	100	—	300

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Package Outline Dimensions (SOT-523)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.65	0.85	0.026	0.033
A1	0.40	0.60	0.016	0.024
B	0.25	0.35	0.010	0.014
b	0.15	0.25	0.006	0.010
C	0.05	0.15	0.002	0.006
D	0.70	0.90	0.028	0.035
D1	1.50	1.70	0.059	0.067
E	1.5	1.7	0.059	0.067
e	0.95	1.05	0.037	0.041
H	-	0.10	-	0.004
L	0.17	-	0.007	-

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.70	0.020	0.028
B	0.60	0.80	0.024	0.031
C	0.90	1.10	0.035	0.043
D	1.20	1.40	0.047	0.055