

Features

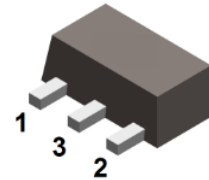
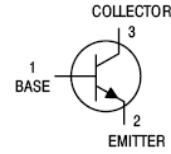
- Surface mount package ideally suited for automatic insertion
- Compliant to Halogen-free

Application

- Signal amplification
- Switching circuit

Mechanical Data

- Package: SOT-89
- Terminals: Tin plated leads; solderable per J-STD-202 and JESD22-B102
- Marking Code: 5G



SOT-89

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Collector-base voltage	V_{CBO}	V	$I_C=100\mu\text{A}$, $I_E=0$	100
Collector-emitter voltage	V_{CEO}	V	$I_C=1\text{mA}$, $I_B=0$	100
Emitter-base voltage	V_{EBO}	V	$I_E=100\mu\text{A}$, $I_C=0$	5
Collector current	I_C	A		4.5
Peak Collector current	I_{CM}	A	single pulse, $t_p \leq 1\text{ms}$	9
Base current	I_B	A		0.4
Power dissipation	P_D	mW		500
Junction temperature	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$		-55 to +150

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

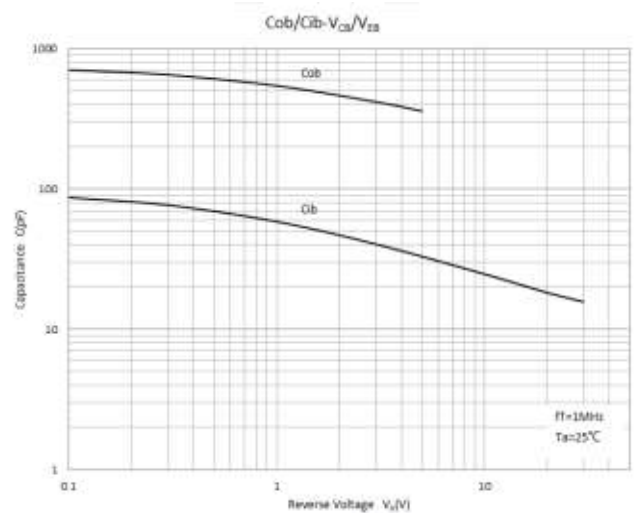
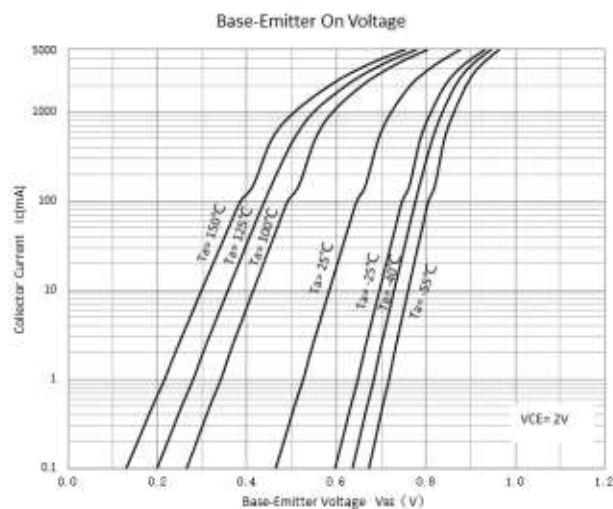
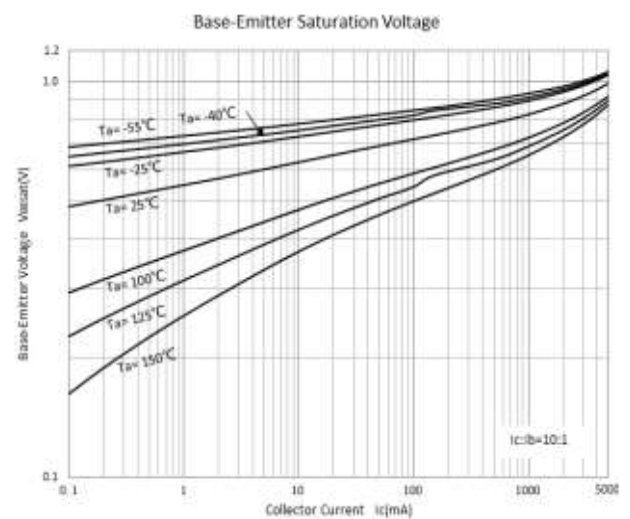
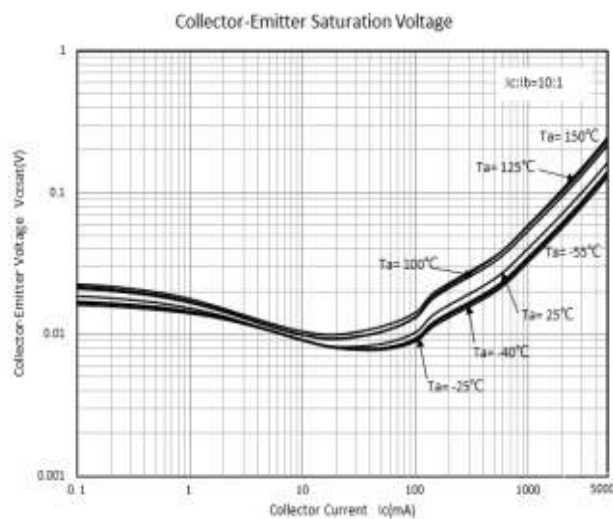
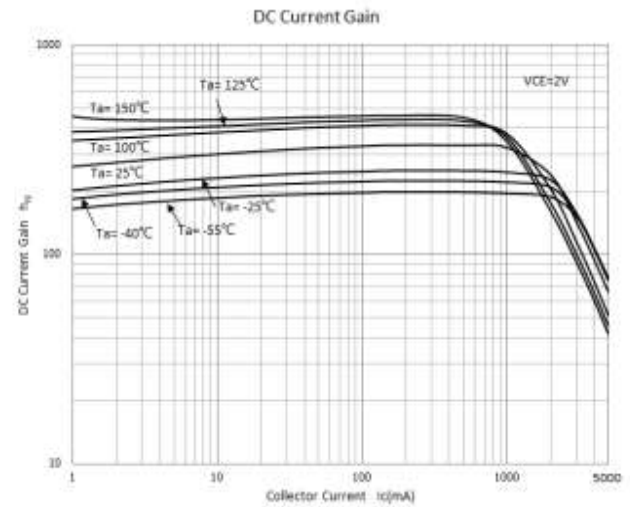
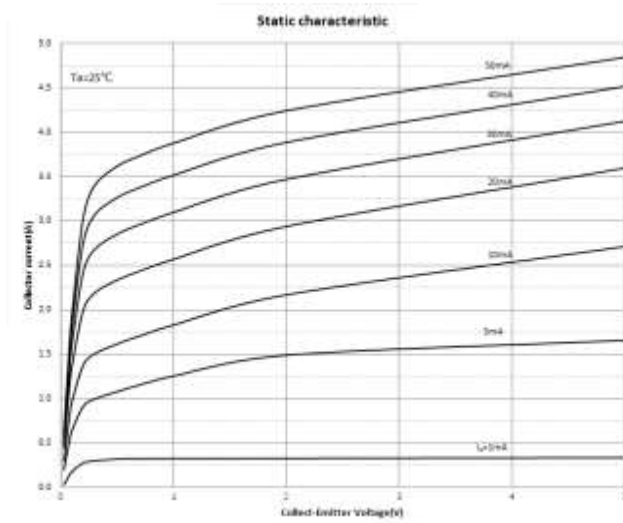
Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C=100\mu\text{A}$, $I_E=0$	100		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=1\text{mA}$, $I_B=0$	100		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=100\mu\text{A}$, $I_C=0$	5		
Collector-base cut-off current	I_{CBO}	nA	$V_{CB}=80\text{V}$, $I_E=0$			100
Emitter-base cut-off current	I_{EBO}	nA	$V_{EB}=5\text{V}$, $I_C=0$			100
Collector Cutoff Current	I_{CES}	μA	$V_{CE}=80\text{V}$, $V_{BE}=0$			10
DC current gain	h_{FE}		$V_{CE}=2\text{V}$, $I_C=0.5\text{A}$	200		
			$V_{CE}=2\text{V}$, $I_C=1\text{A}$	150		
			$V_{CE}=2\text{V}$, $I_C=2\text{A}$	100		
			$V_{CE}=2\text{V}$, $I_C=4\text{A}$	50		
			$V_{CE}=2\text{V}$, $I_C=5\text{A}$	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	mV	$I_C=0.5\text{A}$, $I_B=50\text{mA}$			40
			$I_C=1\text{A}$, $I_B=50\text{mA}$			75
			$I_C=1\text{A}$, $I_B=10\text{mA}$			150
			$I_C=2\text{A}$, $I_B=40\text{mA}$			160
			$I_C=4\text{A}$, $I_B=200\text{mA}$			225
			$I_C=4\text{A}$, $I_B=400\text{mA}$			200
			$I_C=4.5\text{A}$, $I_B=225\text{mA}$			245
Collector-emitter saturation resistance	$R_{CE(sat)}$	m Ω	$I_C=4\text{A}$, $I_B=200\text{mA}$			56
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=1\text{A}$, $I_B=100\text{mA}$			0.9
			$I_C=4\text{A}$, $I_B=400\text{mA}$			1.05
Base-emitter turn-on voltage	V_{BE}	V	$V_{CE}=2\text{V}$, $I_C=2\text{A}$			0.85

Thermal Characteristics

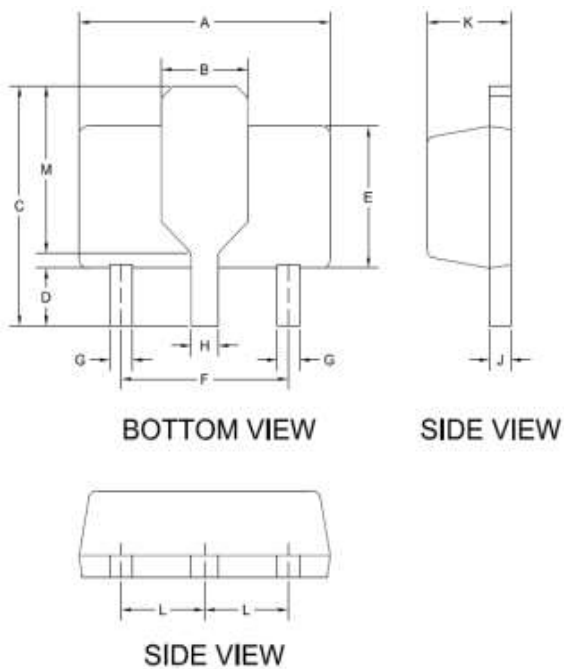
Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	$^\circ\text{C/W}$	250
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	$^\circ\text{C/W}$	50

Note: The device is installed and tested on 25.4 * 25.4 * 1.5mm P.C.B.

Ratings and Characteristic Curves



Package Outline Dimensions



DIM	DIMENSIONS			
	INCHES		MM	
	MIN.	MAX.	MIN.	MAX.
A	0.173	0.181	4.400	4.600
B	0.061 TYP.		1.550 TYP.	
C	0.155	0.167	3.940	4.250
D	0.031	0.047	0.800	1.200
E	0.094	0.102	2.400	2.600
F	0.118 TYP.		3.000 TYP.	
G	0.014	0.019	0.360	0.480
H	0.017	0.022	0.440	0.560
J	0.014	0.017	0.350	0.440
K	0.055	0.063	1.400	1.600
L	0.059 TYP.		1.500 TYP.	
M	0.108 TYP.		2.750 TYP.	

Mounting Pad Layout (Unit: mm)

SOT-89

