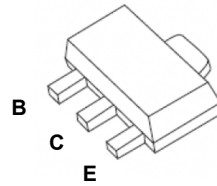
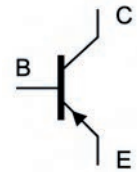


## Features

- Silicon epitaxial planar power transistor
- Low saturation voltages



SOT-89-3L



Schematic Diagram

## Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{\text{CBO}}$	-60	V
Collector Emitter Voltage	$V_{\text{CEO}}$	-50	V
Emitter Base Voltage	$V_{\text{EBO}}$	-6	V
Collector Current	$I_{\text{C}}$	-3	A
Collector Current (Pulse)	$I_{\text{CP}}$	-6	A
Total Power Dissipation <sup>1</sup>	$P_{\text{tot}}$	0.5	W
Total Power Dissipation <sup>2</sup>		1	W
Thermal Resistance from Junction to Ambient <sup>1</sup>	$R_{\theta\text{JA}}$	250	$^{\circ}\text{C}/\text{W}$
Thermal Resistance from Junction to Ambient <sup>2</sup>		125	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_{\text{J}}$	150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{\text{STG}}$	-55 to +150	$^{\circ}\text{C}$

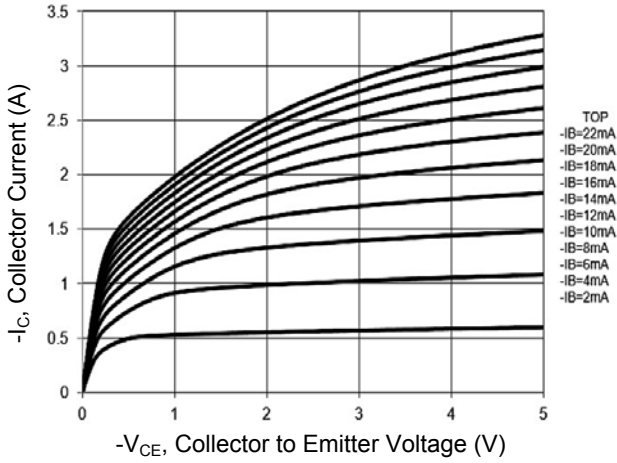
Note:

1. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
2. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

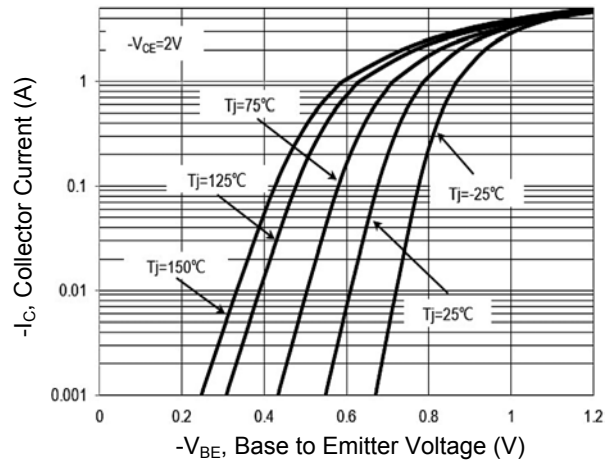
**Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Collector Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C=-100\mu\text{A}$	-60	-	-	V
Collector Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C=-10\text{mA}$	-50	-	-	V
Emitter Base Breakdown Voltage		$V_{(BR)EBO}$	$I_E=-100\mu\text{A}$	-6	-	-	V
Collector Base Cutoff Current		$I_{CBO}$	$V_{CB}=-40\text{V}$	-	-	-1	$\mu\text{A}$
Emitter Base Cutoff Current		$I_{EBO}$	$V_{EB}=-4\text{V}$	-	-	-1	$\mu\text{A}$
DC Current Gain	GSB1124A	$h_{FE(1)}$	$V_{CE}=-2\text{V}, I_C=-100\text{mA}$	100	-	200	-
	GSB1124B	$h_{FE(2)}$		140	-	280	-
	GSB1124C	$h_{FE(3)}$		200	-	400	-
	GSB1124A GSB1124B GSB1124C	$h_{FE(4)}$	$V_{CE}=-2\text{V}, I_C=-3\text{A}$	35	-	-	-
Collector Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C=-2\text{A}, I_B=-100\text{mA}$	-	-	-0.7	V
Base Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C=-2\text{A}, I_B=-100\text{mA}$	-	-	-1.2	V
Transition Frequency		$f_T$	$V_{CE}=-10\text{V}, I_C=-50\text{mA}$	-	150	-	MHz
Collector Output Capacitance		$C_{ob}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$	-	30	-	pF
Turn On Time		$t_{on}$	$V_{CC}=-10\text{V}, I_C=-500\text{mA}, I_{B1}=I_{B2}=-50\text{mA}$	-	40	-	nS
Turn Off Time		$t_{off}$	$V_{CC}=-10\text{V}, I_C=-500\text{mA}, I_{B1}=I_{B2}=-50\text{mA}$	-	450	-	nS

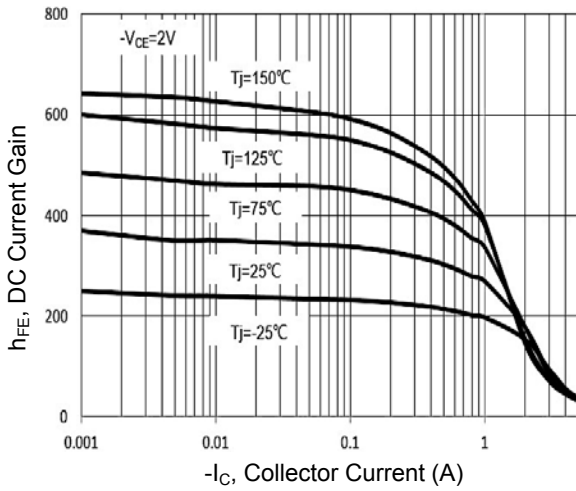
**Electrical Characteristic Curves**



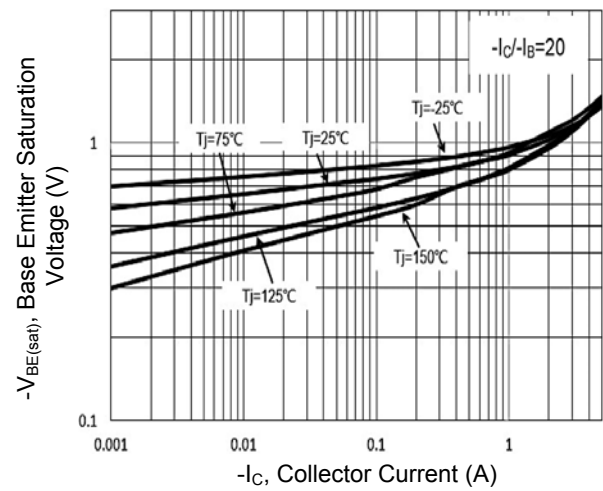
**Figure 1. Output Characteristics Curve**



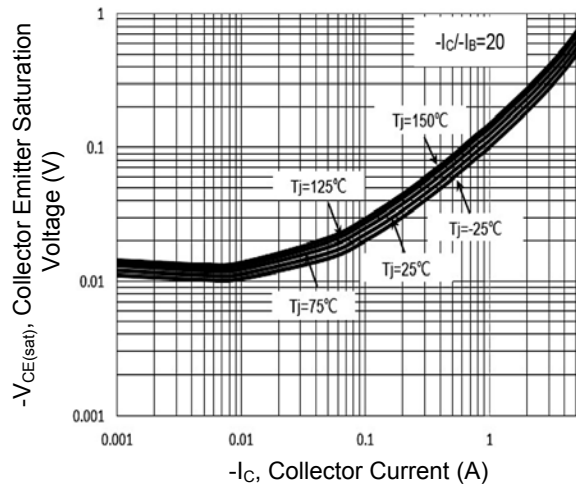
**Figure 2. Collector Current vs. Base to Emitter Voltage**



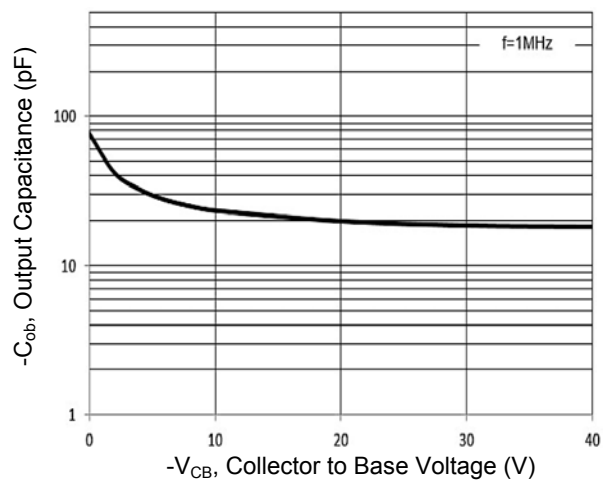
**Figure 3. DC Current Gain vs. Collector Current**



**Figure 4. Base Emitter Saturation Voltage vs. Collector Current**

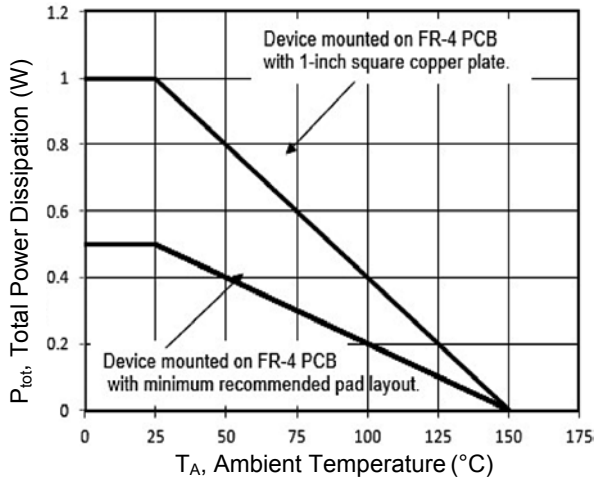


**Figure 5. Collector Emitter Saturation Voltage vs. Collector Current**



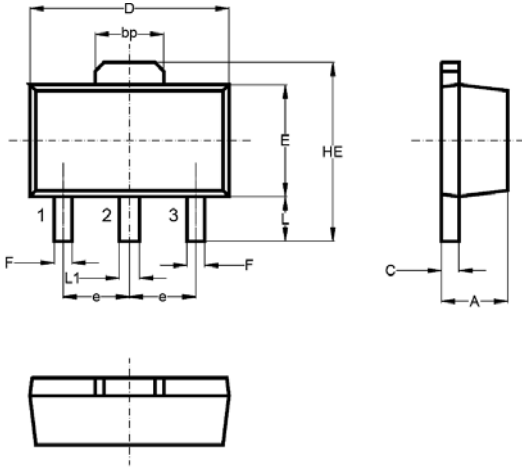
**Figure 6. Output Capacitance**

**Electrical Characteristic Curves**



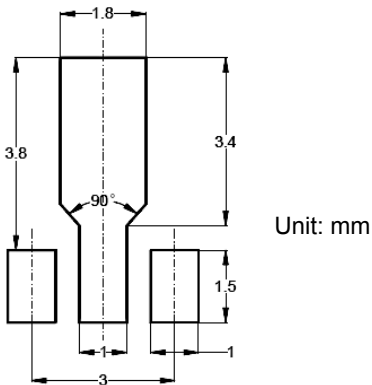
**Figure 7. Power Derating Curve**

**Package Outline Dimensions (SOT-89-3L)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
bp	1.500	1.600	0.059	0.063
C	0.300	0.500	0.012	0.020
D	4.400	4.600	0.173	0.181
E	2.400	2.600	0.094	0.102
F	0.350	0.450	0.014	0.018
HE	3.750	4.250	0.148	0.167
e	1.50 Typ.		0.059 Typ.	
L	0.950	1.050	0.037	0.041
L1	0.410	0.510	0.016	0.020

**Recommended Pad Layout**



**Ordering Information**

Device	Package	Marking	Carrier	Quantity
GSB1124A	SOT-89-3L	2SB1124AU	Tape & Reel	1,000 Pcs / Reel
GSB1124B	SOT-89-3L	2SB1124BU	Tape & Reel	1,000 Pcs / Reel
GSB1124C	SOT-89-3L	2SB1124CU	Tape & Reel	1,000 Pcs / Reel

For more information, please contact us at: [inquiry@goodarksemi.com](mailto:inquiry@goodarksemi.com)