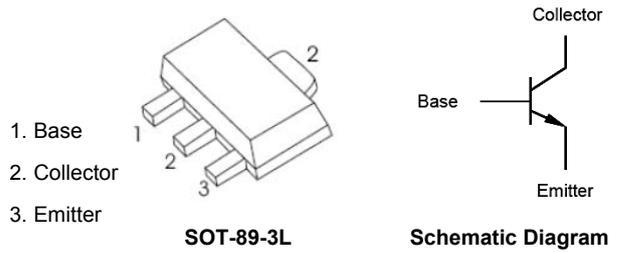


**Features**

- Low collector emitter saturation voltage

**Applications**

Low loss power switching



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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	50	V
Collector Emitter Voltage	$V_{CEO}$	50	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	3	A
Peak Collector Current, Pulsed	$I_{CM}$	5	A
Base Current	$I_B$	0.5	A
Total Power Dissipation <sup>1</sup>	$P_{tot}$	1	W
Total Power Dissipation <sup>2</sup>		1.6	
Max. Thermal Resistance from Junction to Ambient <sup>1</sup>	$R_{\theta JA}$	125	$^{\circ}\text{C/W}$
Max. Thermal Resistance from Junction to Ambient <sup>2</sup>		78	
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^{\circ}\text{C}$

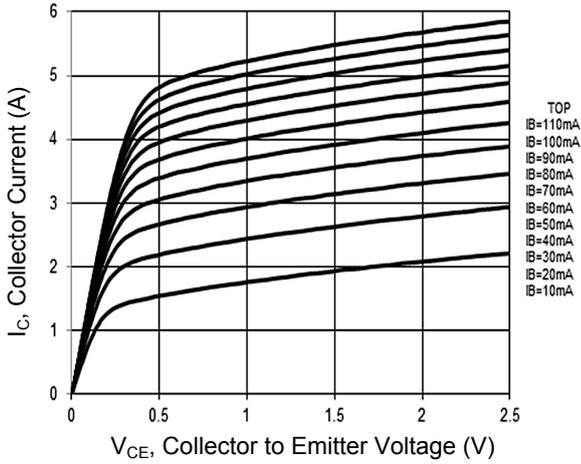
Note:

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.

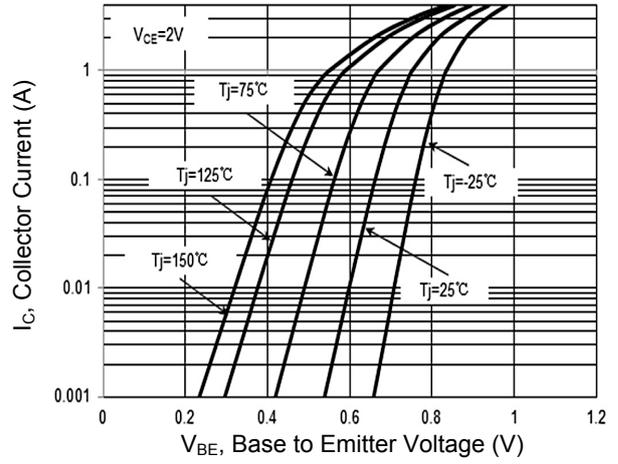
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Condition	Min.	Max.	Unit
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$	50	-	V
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}$	50	-	V
Emitter Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$	5	-	V
Collector Base Cutoff Current	$I_{CBO}$	$V_{CB}=50\text{V}$	-	100	nA
Emitter Base Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}$	-	100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=2\text{V}, I_C=0.1\text{A}$	300	-	-
		$V_{CE}=2\text{V}, I_C=0.5\text{A}$	300	-	
		$V_{CE}=2\text{V}, I_C=1\text{A}$	300	700	
		$V_{CE}=2\text{V}, I_C=2\text{A}$	200	-	
		$V_{CE}=2\text{V}, I_C=3\text{A}$	100	-	
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5\text{A}, I_B=50\text{mA}$	-	80	mV
		$I_C=1\text{A}, I_B=50\text{mA}$	-	160	
		$I_C=2\text{A}, I_B=100\text{mA}$	-	280	
		$I_C=2\text{A}, I_B=200\text{mA}$	-	260	
		$I_C=3\text{A}, I_B=300\text{mA}$	-	370	
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2\text{A}, I_B=100\text{mA}$	-	1.1	V
		$I_C=3\text{A}, I_B=300\text{mA}$	-	1.2	
Base Emitter On Voltage	$V_{BE(ON)}$	$V_{CE}=2\text{V}, I_C=1\text{A}$	-	1.1	V
Transition Frequency	$f_T$	$V_{CE}=5\text{V}, I_C=100\text{mA}, f=100\text{MHz}$	100	-	MHz
Collector Base Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$	-	25	pF

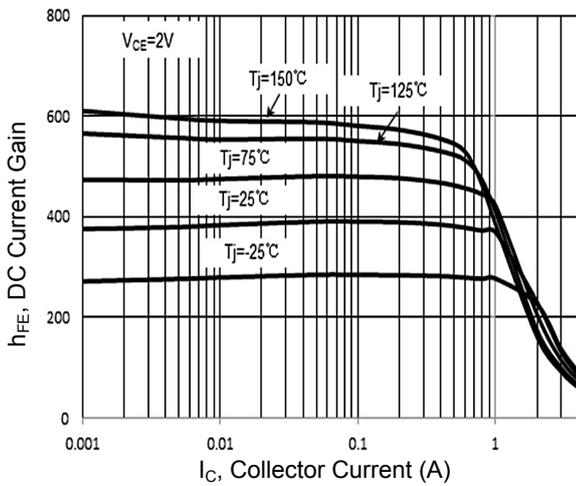
**Electrical Characteristic Curves**



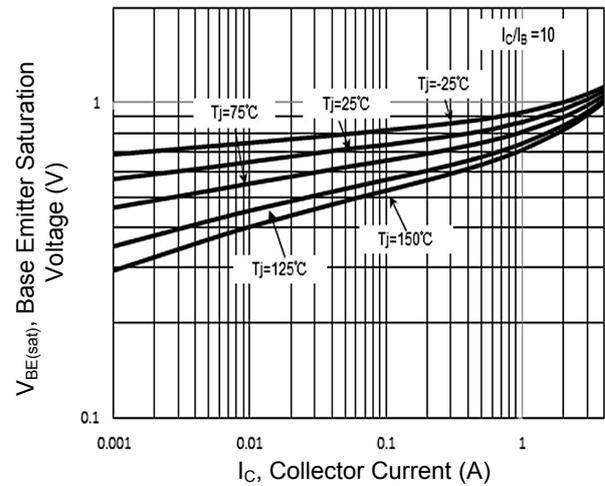
**Figure 1. Output Characteristics Curve**



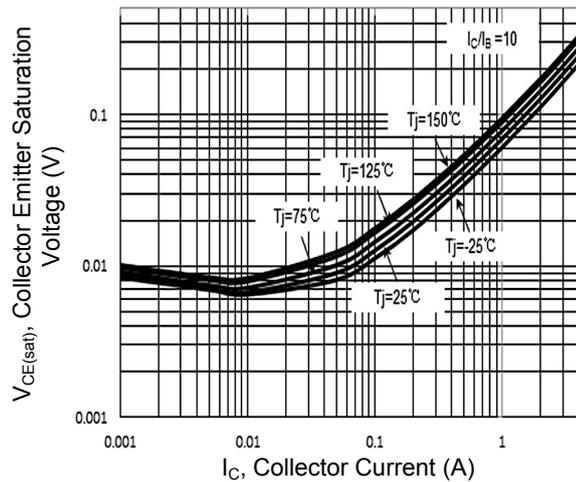
**Figure 2. Collector Current vs. Base to Emitter Voltage**



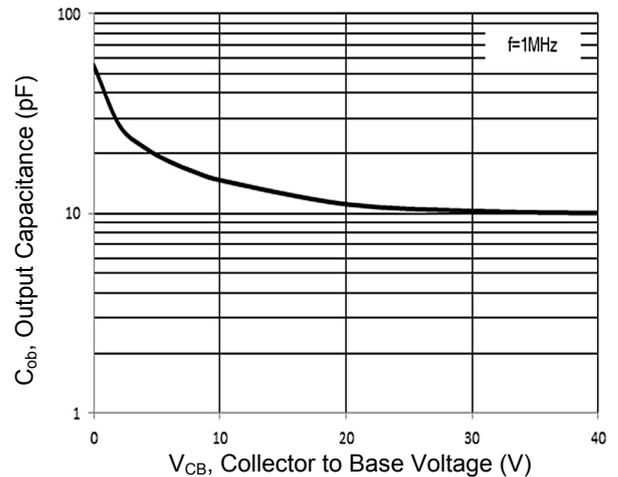
**Figure 3. DC Current Gain vs. Collector Current**



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

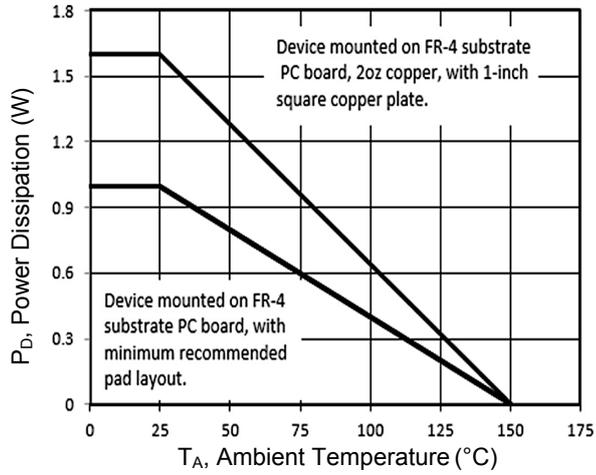


**Figure 5. Collector Emitter Saturation Voltage vs. Collector Current**



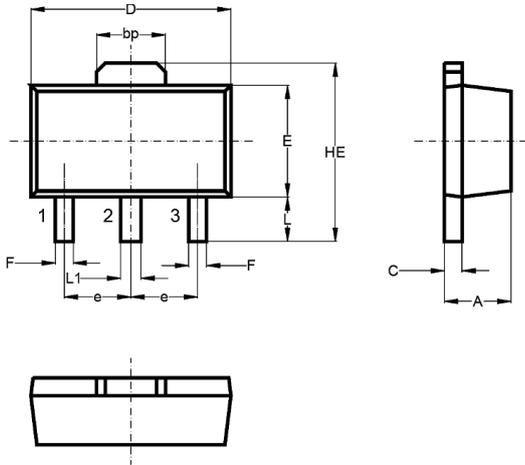
**Figure 6. Output Capacitance**

**Electrical Characteristic Curves**



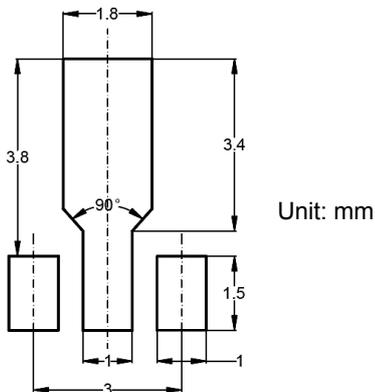
**Figure 7. Power Derating Curve**

**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	1.500 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**



**Order Information**

Device	Package	Marking	Packaging	SPQ
GSTSD350U	SOT-89-3L	2SD350U	Tape & Reel	1,000 Pcs / Reel