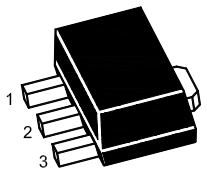
2SC3647U

NPN Silicon Epitaxial Planar Power Transistor



1.Base 2.Collector 3.Emitter
SOT-89 Plastic Package

Applications

• For power amplification applications

Absolute Maximum Ratings (T_a = 25℃)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	120	V
Collector Emitter Voltage	V_{CEO}	100	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	2	A
Peak Collector Current	I_{CM}	3	A
Collector Power Dissipation	P_C	0.5 [1)] 1.5 [2)]	W
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃

Thermal Resistance Ratings

Parameter	Symbol	Max.	Unit
Maximum Junction to Ambient	$R_{\theta JA}$	250 [1)] 83 [2)]	℃/W

[1)] Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.

[2)] Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate

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Characteristics at T_a = 25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 5 V, I_C = 100 mA	R S T	h_{FE} h_{FE} h_{FE}	100 140 200	- - -	200 280 400	- - -
Collector Base Cutoff Current at V_{CB} = 100 V		I_{CBO}	-	-	100	nA
Emitter Base Cutoff Current at V_{EB} = 4 V		I_{EBO}	-	-	100	nA
Collector Base Breakdown Voltage at I_C = 10 µA		$V_{(BR)CBO}$	120	-	-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA		$V_{(BR)CEO}$	100	-	-	V
Emitter Base Breakdown Voltage at I_E= 10 µA		$V_{(BR)EBO}$	6	-	-	V
Collector Emitter Saturation Voltage at I_C = 1 A, I_B = 100 mA		$V_{CE(sat)}$	-	-	0.4	V
Base Emitter Saturation Voltage at I_C = 1 A, I_B = 100 mA		$V_{BE(sat)}$	-	-	1.2	V
Transition Frequency at V_{CE} = 10 V, I_C = 100 mA		f_T	-	120	-	MHz
Collector Output Capacitance at V_{CB} = 10 V, f = 1 MHz		C_{ob}	-	25	-	pF
Turn-on Time at V_{CC} = 50 V, I_C =10I_{B1} = -10I_{B2} = 0.7 A		t_{on}	-	80	-	ns
Storage Time at V_{CC} = 50 V, I_C =10I_{B1} = -10I_{B2} = 0.7 A		t_{stg}	-	1000	-	ns
Fall Time at V_{CC} = 50 V, I_C =10I_{B1} = -10I_{B2} = 0.7 A		t_f	-	50	-	ns

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

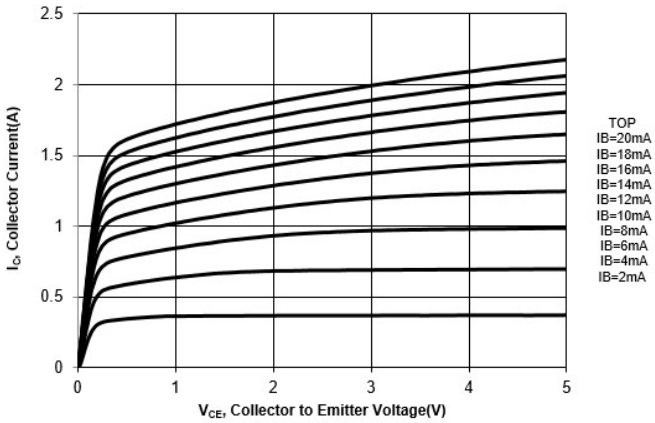


Fig. 2 Collector Current vs. Base to Emitter Voltage

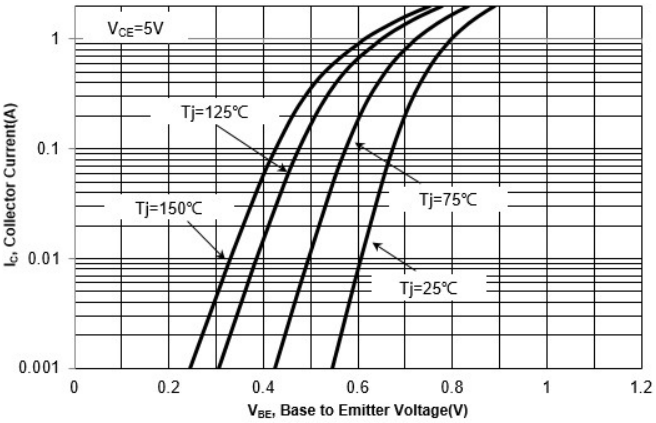


Fig. 3 DC Current Gain vs. Collector Current

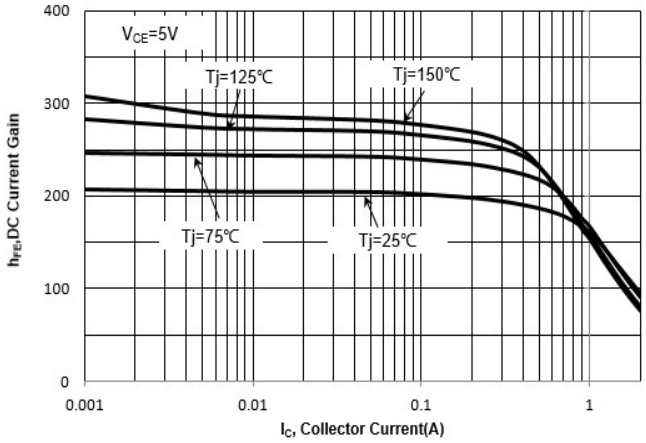
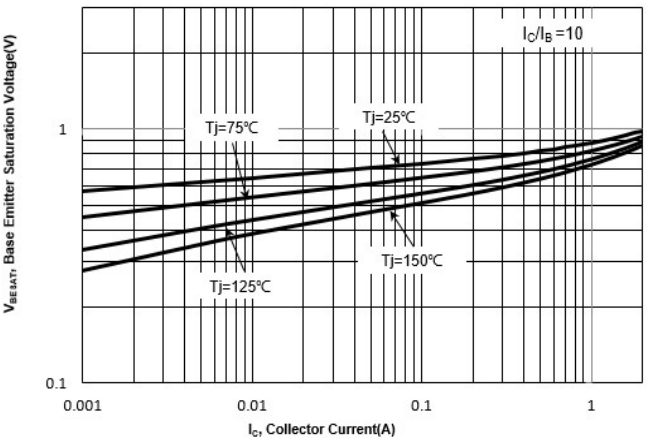


Fig. 4 V_{BESAT} vs. Collector Current



Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

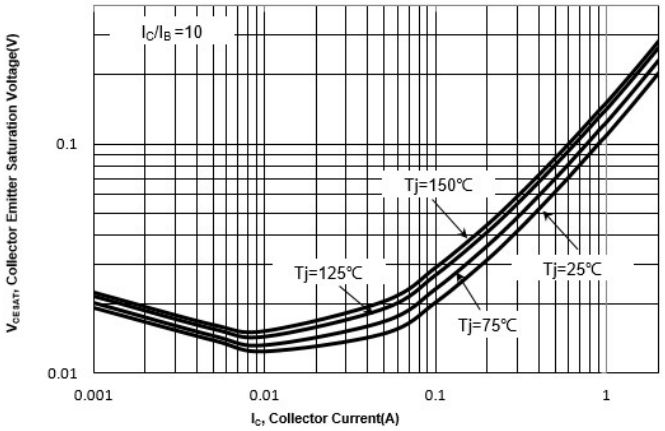


Fig. 6 Output Capacitance

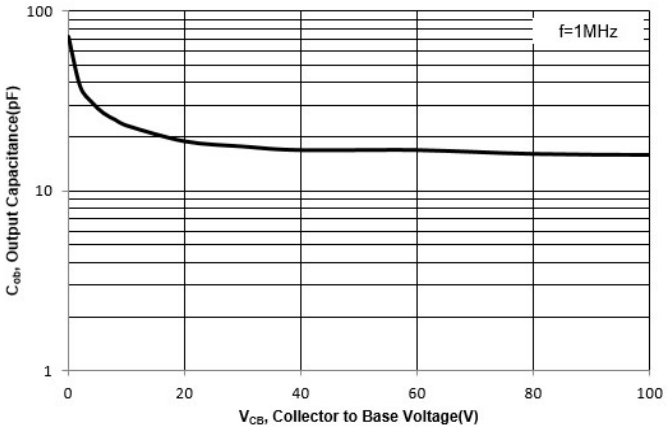
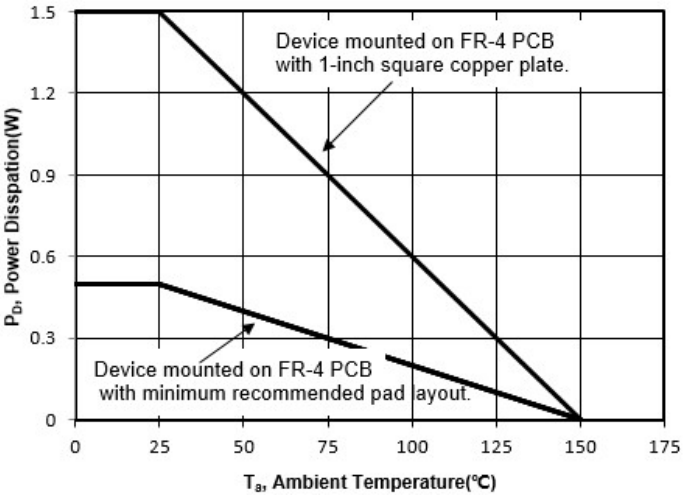


Fig. 7 Power Derating Curve



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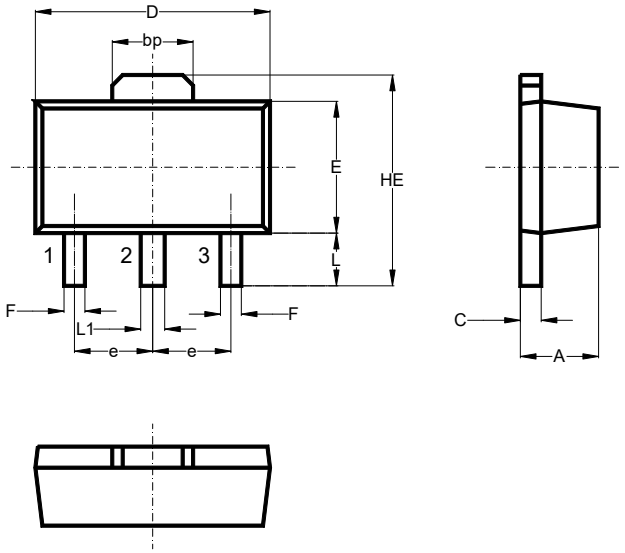
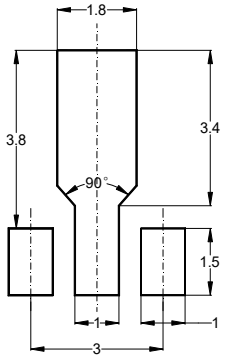
Package Outline (Dimensions in mm) SOT-89



Unit	A	bp	C	D	E	F	HE	e	L	L1
mm	1.6 1.4	1.60 1.50	0.5 0.3	4.6 4.4	2.6 2.4	0.45 0.35	4.25 3.75	1.5 typ.	1.05 0.95	0.51 0.41

Recommended Soldering Footprint

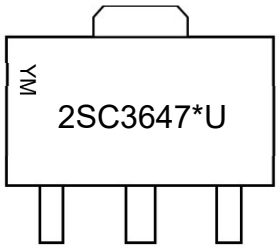


Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-89	12	8 ± 0.1	0.315 ± 0.004	178	7	1,000
				330	13	4,000

Marking information

" 2SC3647*U " = Part No.(" * " Current Gain Code)
"YM" = Date Code Marking
"Y" = Year
"M" = Month
Font type: Arial



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