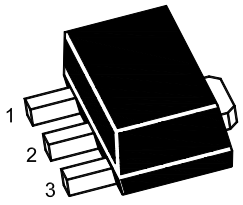
2SC5824U

NPN Silicon Epitaxial Planar Power Transistor

Features

• High speed switching



1.Base 2.Collector 3.Emitter

SOT-89 Plastic Package

Absolute Maximum Ratings (T_a = 25℃)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	60	V
Collector Emitter Voltage	V_{CEO}	60	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	3	A
Peak Pulse Collector Current (100 ms)	I_{CP}	6	A
Power Dissipation	P_{tot}	0.5 [1)] 2 [2)]	W
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance - Junction to Ambient	$R_{\theta JA}$	250 [1)] 62.5 [2)]	℃/W

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

[2)] Mounted on a 40 x 40 x 0.7 (mm) ceramic substrate.

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Characteristics at T_a = 25℃

Parameter			Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 2 V, I_C = 100 mA	Current Gain Group	Q R	h_{FE} h_{FE}	120 180	- -	270 390	- -
Collector Base Cutoff Current at V_{CB} = 40 V			I_{CBO}	-	-	1	µA
Emitter Base Cutoff Current at V_{EB} = 4 V			I_{EBO}	-	-	1	µA
Collector Base Breakdown Voltage at I_C = 100 µA			$V_{(BR)CBO}$	60	-	-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA			$V_{(BR)CEO}$	60	-	-	V
Emitter Base Breakdown Voltage at I_E = 100 µA			$V_{(BR)EBO}$	6	-	-	V
Collector Emitter Saturation Voltage at I_C = 2 A, I_B = 200 mA			$V_{CE(sat)}$	-	-	0.5	V
Transition Frequency at V_{CE} = 10 V, $-I_E$ = 100 mA			f_T	-	200	-	MHz
Output Capacitance at V_{CB} = 10 V, f = 1 MHz			C_{ob}	-	15	-	pF
Turn-on Time at V_{CC} = 25 V, I_C = 3 A, I_{B1} = 300 mA, $-I_{B2}$ = 300 mA			t_{on}	-	50	-	ns
Storage Time at V_{CC} = 25 V, I_C = 3 A, I_{B1} = 300 mA, $-I_{B2}$ = 300 mA			t_s	-	150	-	ns
Fall Time at V_{CC} = 25 V, I_C = 3 A, I_{B1} = 300 mA, $-I_{B2}$ = 300 mA			t_f	-	30	-	ns

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

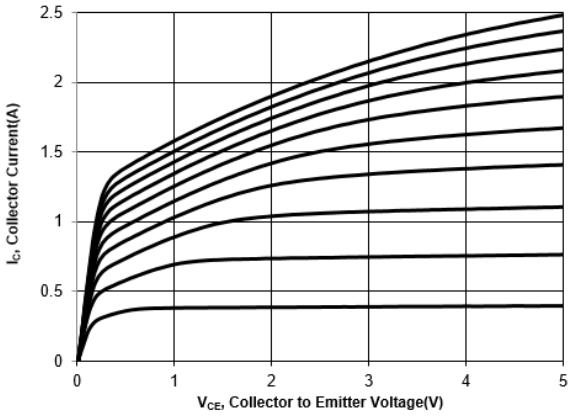


Fig. 2 Collector Current vs. V_{BE}

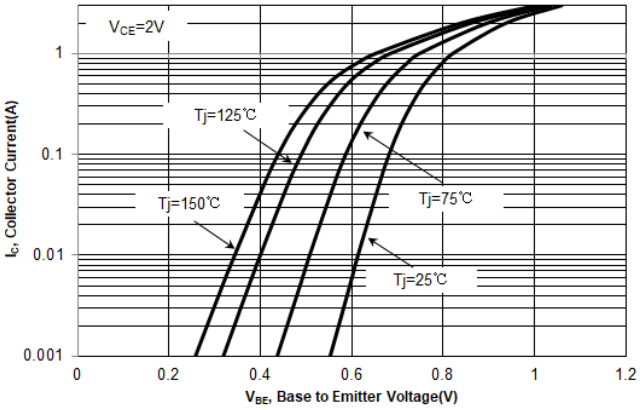


Fig 3. DC Current Gain vs. Collector Current

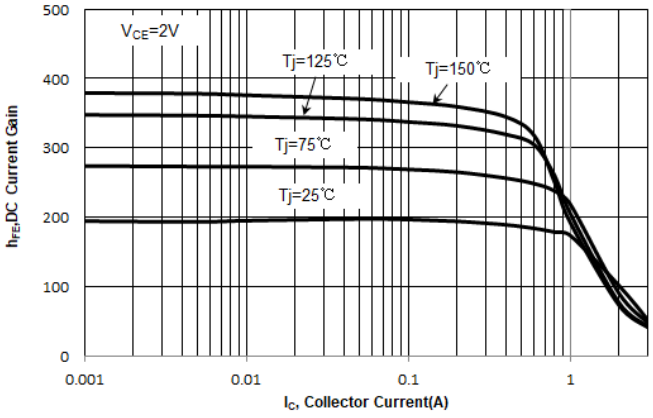
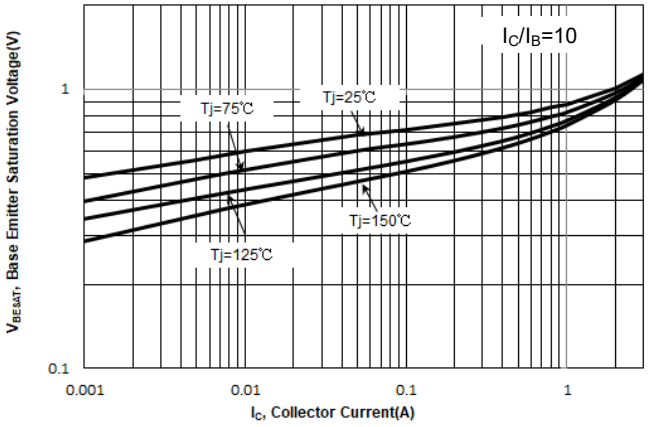


Fig 4. $V_{BE(sat)}$ vs. Collector Current



Electrical Characteristics Curves

Fig 5. $V_{CE(sat)}$ vs. Collector Current

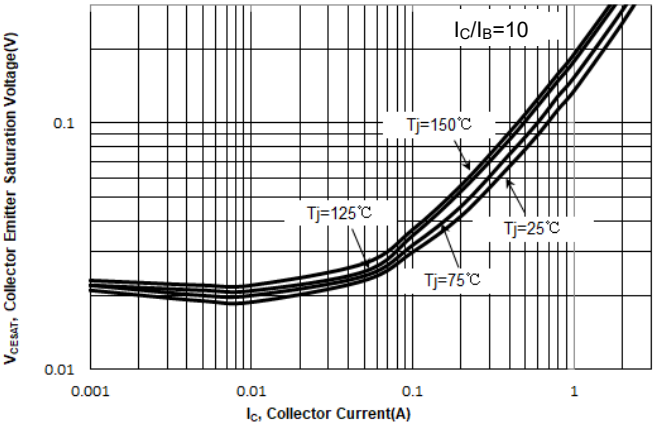


Fig 6. Capacitance Characteristics

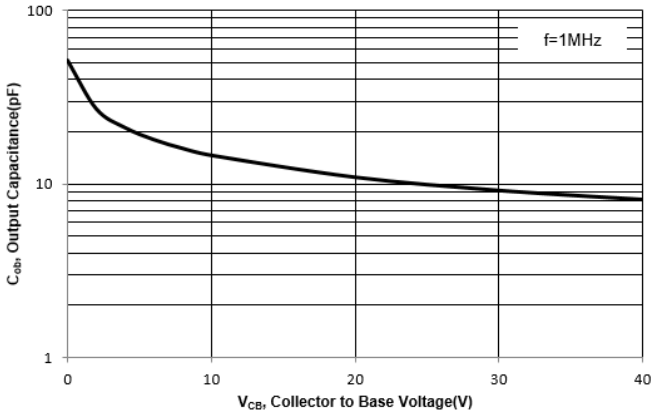
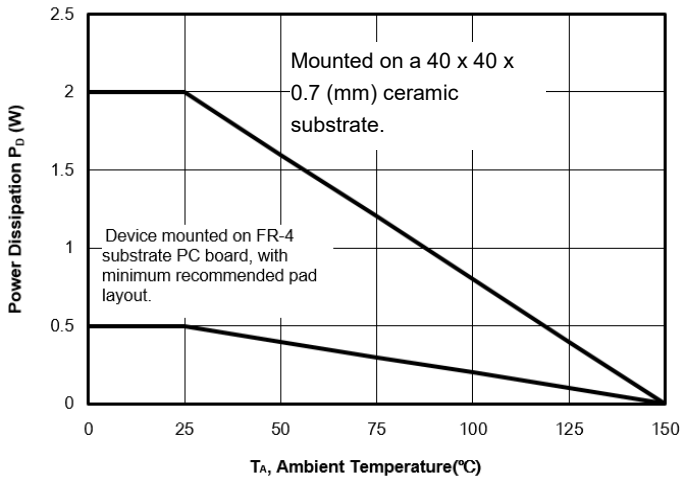


Fig 7. Power Derating Curve



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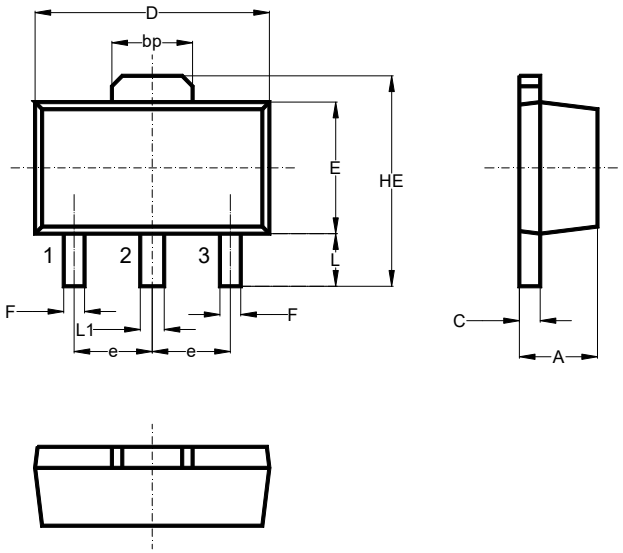
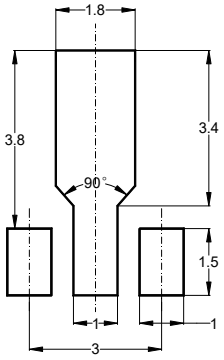
Package Outline (Dimensions in mm) SOT-89



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

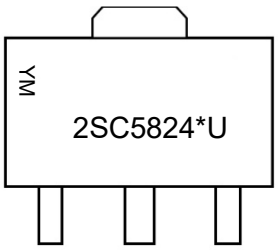


Packing information

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

" 2SC5824*U " = Part No.("*" = hFE Current Gain Group)
"YM" = Date Code Marking
"Y" = Year
"M" = Month
Font type: Arial



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