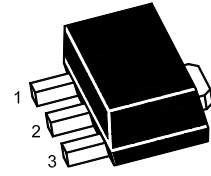


2SD965U

NPN Silicon Epitaxial Planar Transistor

For low frequency power amplification

The transistor is subdivided into three groups, Q, R and P, according to its DC current gain.



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

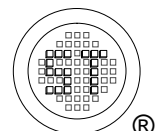
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector to Base Voltage	V_{CB0}	40	V
Collector to Emitter Voltage	V_{CE0}	20	V
Emitter to Base Voltage	V_{EB0}	7	V
Collector Current	I_C	5	A
Peak Collector Current	I_{CP}	7	A
Total power dissipation	P_{tot}	0.75	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{Stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction Ambient ¹⁾	$R_{\theta JA}$	167	$^\circ\text{C}/\text{W}$

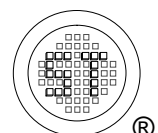
¹⁾ Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



2SD965U

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 2\text{ V}$, $I_C = 500\text{ mA}$ Current Gain Group Q R P	h_{FE}	230	-	380	-
	h_{FE}	340	-	600	-
	h_{FE}	560	-	800	-
	h_{FE}	150	-	-	-
at $V_{CE} = 2\text{ V}$, $I_C = 2\text{ A}$					
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	20	-	-	V
Emitter Base Breakdown Voltage at $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	7	-	-	V
Collector Base Cutoff Current at $V_{CB} = 10\text{ V}$	I_{CBO}	-	-	0.1	μA
Collector Emitter Cutoff Current at $V_{CE} = 10\text{ V}$	I_{CEO}	-	-	1	μA
Emitter Base Cutoff Current at $V_{EB} = 7\text{ V}$	I_{EBO}	-	-	0.1	μA
Collector Emitter Saturation Voltage at $I_C = 3\text{ A}$, $I_B = 0.1\text{ A}$	$V_{CE(sat)}$	-	-	1	V
Transition Frequency at $V_{CB} = 6\text{ V}$, $-I_E = 50\text{ mA}$, $f = 200\text{ MHz}$	f_T	-	187	-	MHz
Collector Output Capacitance at $V_{CB} = 20\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	-	50	pF



Electrical Characteristics Curves

Fig. 1 Power Derating Curve

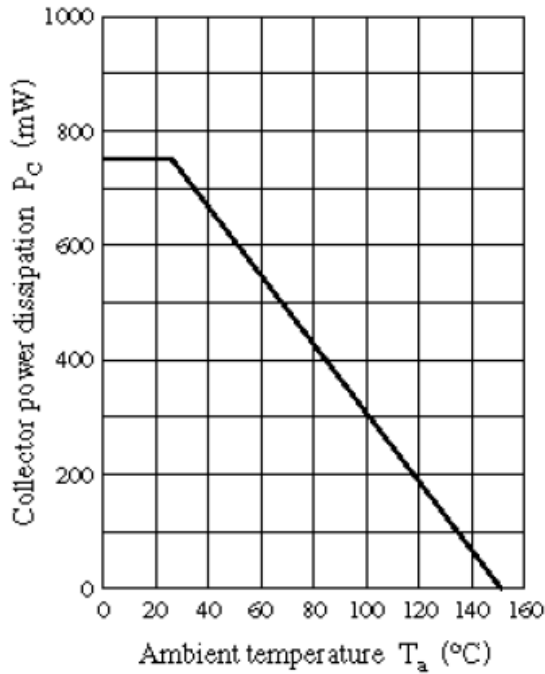


Fig. 2 Output Characteristics Curve

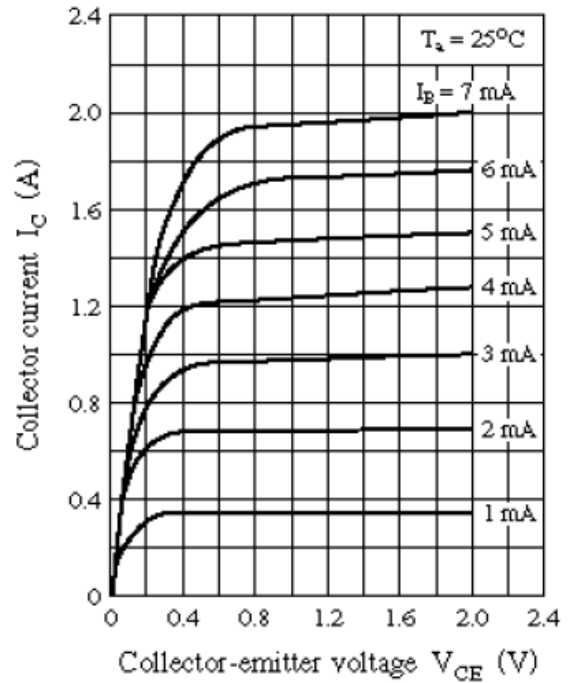


Fig. 3 Collector Current vs. Base to Emitter Voltage

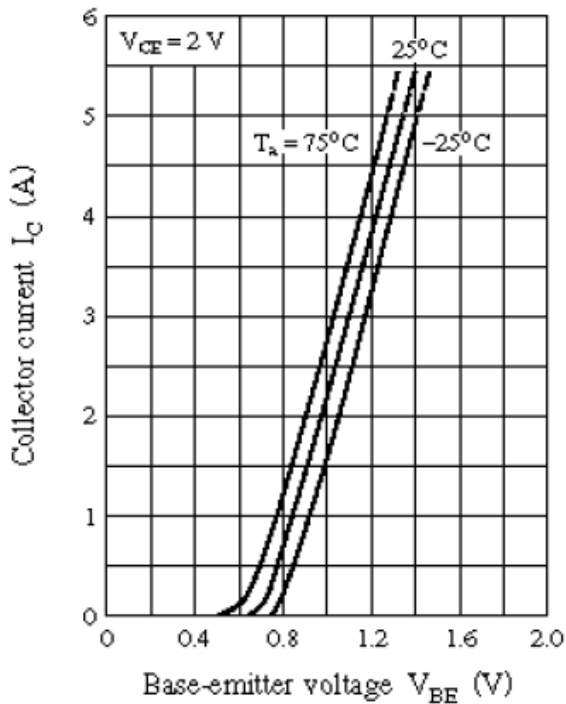
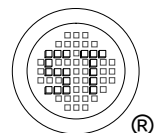
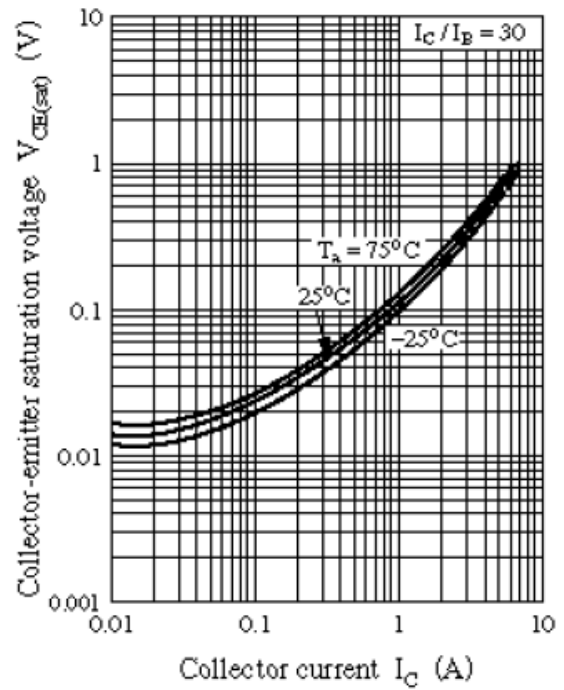


Fig. 4 V_{CESAT} vs. Collector Current



Electrical Characteristics Curves

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

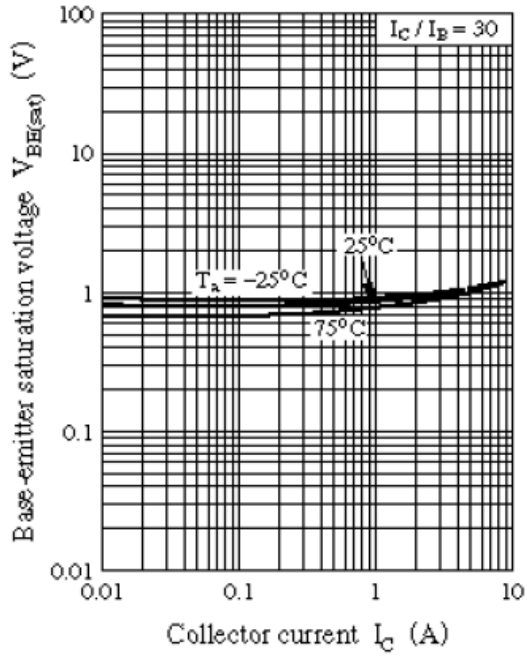


Fig. 6 DC Current Gain vs. Collector Current

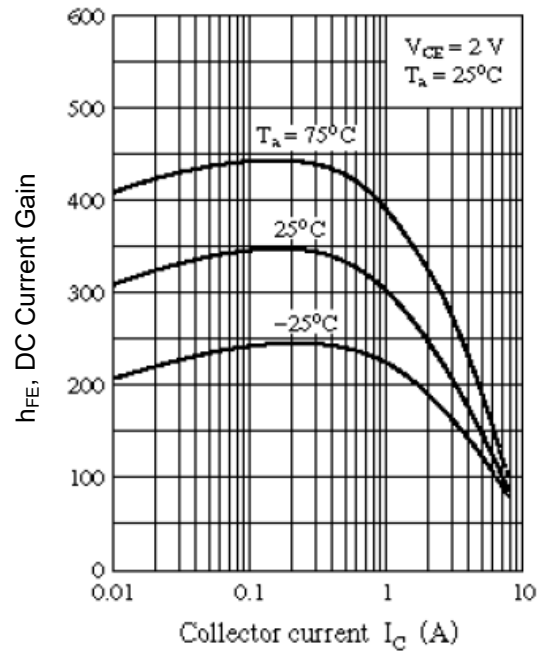
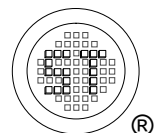
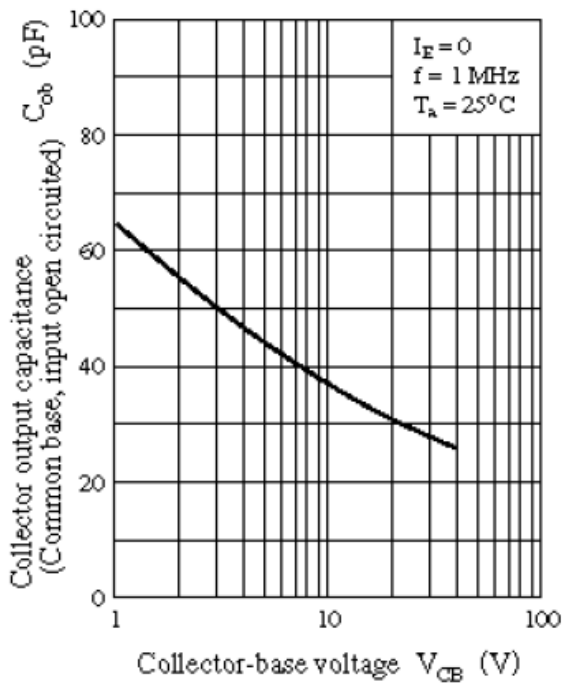


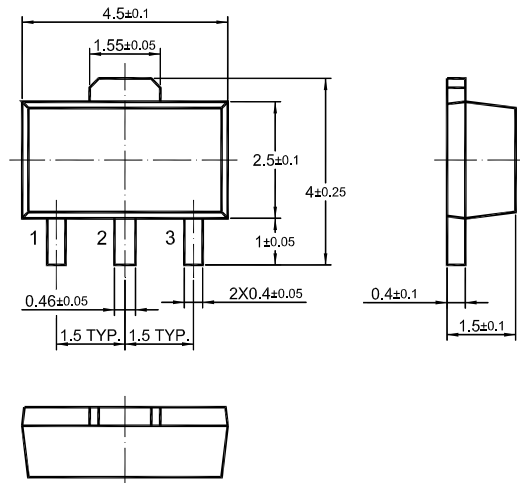
Fig. 7 Output Capacitance



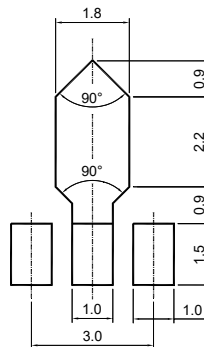
2SD965U

Package Outline (Dimensions in mm)

SOT-89



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

" 2SD965*U " = Part No. (" * " = HFE grouping Code)

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial

