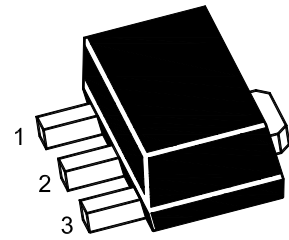


# 2SD1760U

## NPN Silicon Epitaxial Planar Power Transistor



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

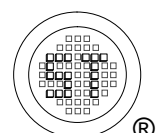
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{\text{CBO}}$	60	V
Collector Emitter Voltage	$V_{\text{CEO}}$	45	V
Emitter Base Voltage	$V_{\text{EBO}}$	5	V
Collector Current - DC	$I_{\text{C}}$	3	A
Collector Current - Pulse, $P_{\text{W}} = 100\text{ms}$	$I_{\text{CM}}$	4.5	A
Collector Power Dissipation	$P_{\text{C}}$	1	W
Junction Temperature	$T_{\text{J}}$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{\text{Stg}}$	- 55 to + 150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient <sup>1)</sup>	$R_{\theta\text{JA}}$	125	$^\circ\text{C}/\text{W}$

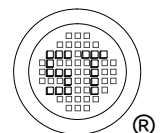
<sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate



# 2SD1760U

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 3\text{ V}$ , $I_C = 0.5\text{ A}$	Current Gain Group P	$h_{FE}$	82	-	180	-
	Q	$h_{FE}$	120	-	270	-
	R	$h_{FE}$	180	-	390	-
Collector Cutoff Current at $V_{CB} = 40\text{ V}$	$I_{CBO}$	-	-	1	$\mu\text{A}$	
Emitter Cutoff Current at $V_{EB} = 4\text{ V}$	$I_{EBO}$	-	-	1	$\mu\text{A}$	
Collector Base Breakdown Voltage at $I_C = 50\text{ }\mu\text{A}$	$V_{(BR)CBO}$	60	-	-	V	
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	45	-	-	V	
Emitter Base Breakdown Voltage at $I_E = 50\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V	
Collector Emitter Saturation Voltage at $I_C = 2\text{ A}$ , $I_B = 200\text{ mA}$	$V_{CE(sat)}$	-	-	1	V	
Transition Frequency at $V_{CE} = 5\text{ V}$ , $-I_E = 0.5\text{ A}$ , $f = 30\text{ MHz}$	$f_T$	-	90	-	MHz	
Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	30	-	pF	



# 2SD1760U

## Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

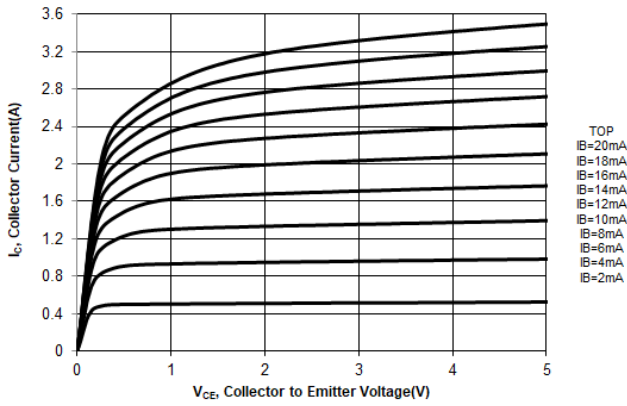


Fig. 2 Collector Current vs. Base to Emitter Voltage

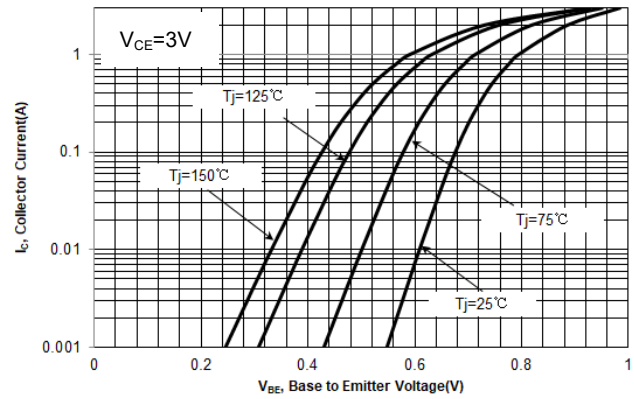


Fig. 3 DC Current Gain vs. Collector Current

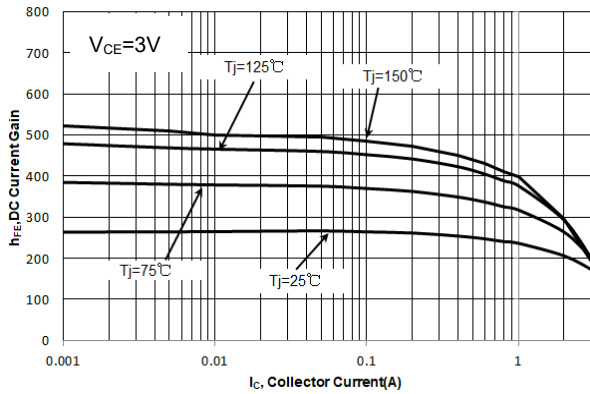


Fig. 4  $V_{BESAT}, V_{CESAT}$  vs. Collector Current

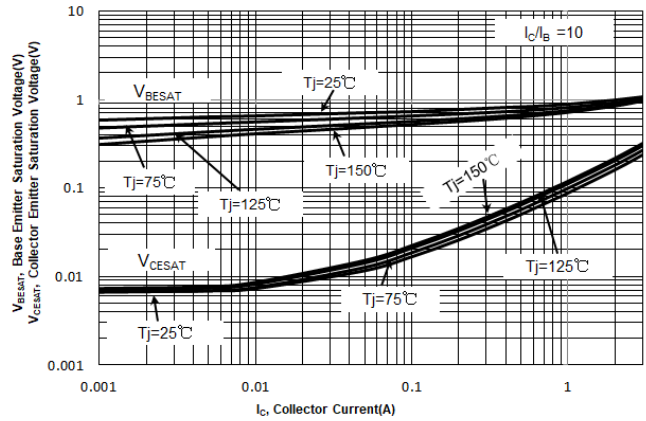


Fig. 5 Output Capacitance

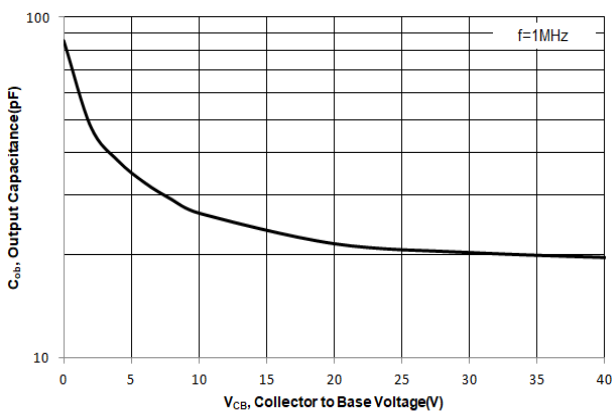
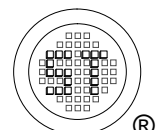
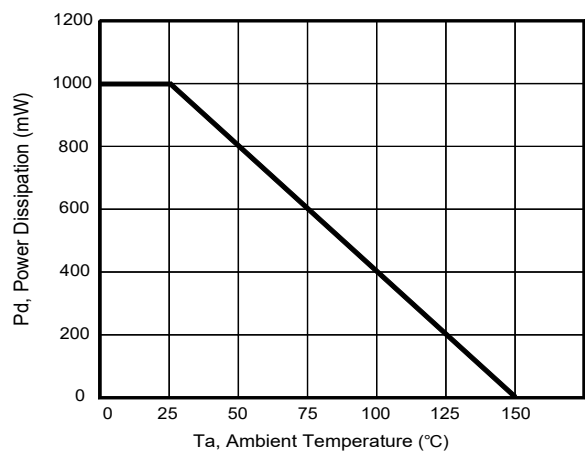


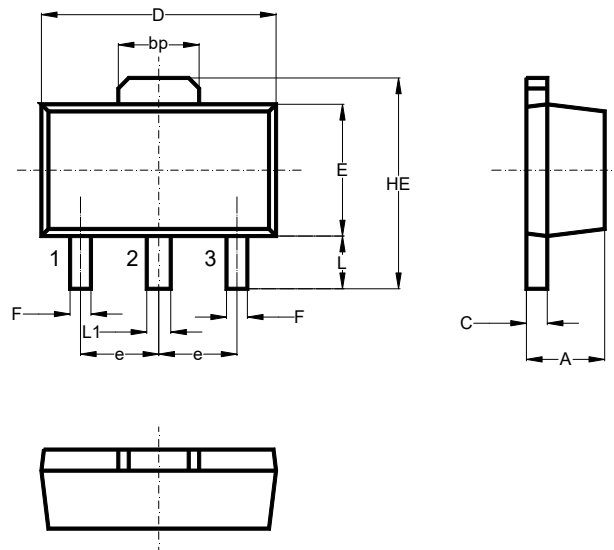
Fig. 6 Power Derating Curve



# 2SD1760U

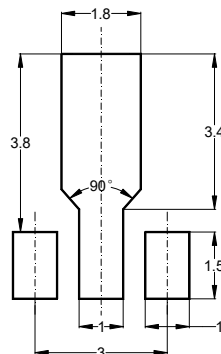
## Package Outline (Dimensions in mm)

SOT-89



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

" 2SD1760\*U " = Part No. (" \* " = hFE Current Gain Group)

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial

