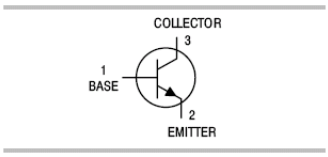
NPN Silicon Epitaxial Planar Transistor

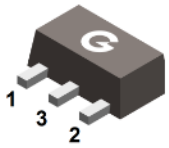
2SD1664

Features

HF

- Epitaxial planar die construction
- Complimentary to 2SB1132
- Ultra-small surface mount package
- RoHS compliant with Halogen-free





SOT-89

Mechanical Data

- Case: SOT-89
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
2SD1664-P	SOT-89	1000 pcs / Tape & Reel	DAP
2SD1664-Q	SOT-89	1000 pcs / Tape & Reel	DAQ
2SD1664-R	SOT-89	1000 pcs / Tape & Reel	DAR

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	40	V
Collector-Emitter Breakdown Voltage	V_{CEO}	32	V
Emitter-Base Breakdown Voltage	V_{EBO}	5	V
Collector Current (Continuous)	I_C	1	A
Collector Current (Peak)	I_{CM}	2	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C) *1	P_D	500	mW
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	250	°C/W
Power Dissipation (T_A = 25°C) *2	P_D	2	W
Thermal Resistance Junction-to-Air *2	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	18	°C/W
Operating junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 50μA, I_E = 0	40	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	32	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 50μA, I_C = 0	5	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 20V, I_E = 0	-	-	0.5	μA
Collector Cut-off Current	I_{EBO}	V_{EB} = 4V, I_C = 0	-	-	0.5	μA
DC Current Gain	h_{FE}	V_{CE} = 3V, I_C = 100mA	82	-	390	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 500mA, I_B = 50mA	-	0.15	0.4	V
Transition Frequency	f_T	I_C = 50mA, V_{CE} = 5V f = 100MHz	-	150	-	MHz
Collector Output Capacitance	C_{OBO}	V_{CB} = 10V, I_E = 0, f = 1MHZ	-	6	-	pF

Classification of h_{FE}

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	DAP	DAQ	DAR

Notes:

1. The data tested by surface mounted on a minimum recommended FR-4 board
2. The data tested by surface mounted on a 1 $inch^2$ FR-4 board with 2OZ copper

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

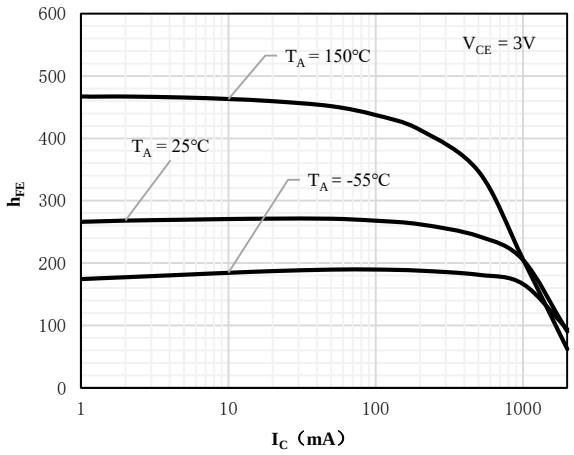


Fig 1 h_{FE} vs. I_C

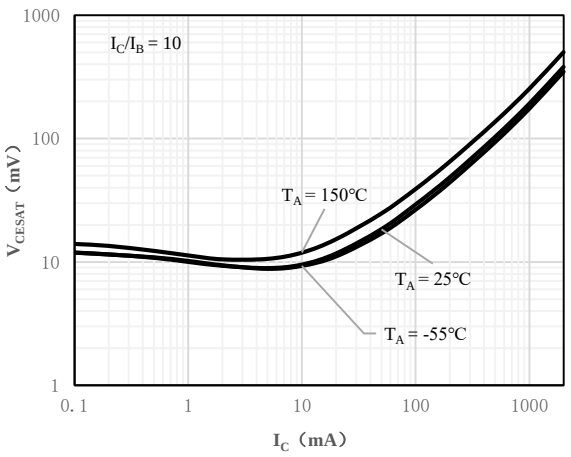


Fig 2 $V_{CE(sat)}$ vs. I_C

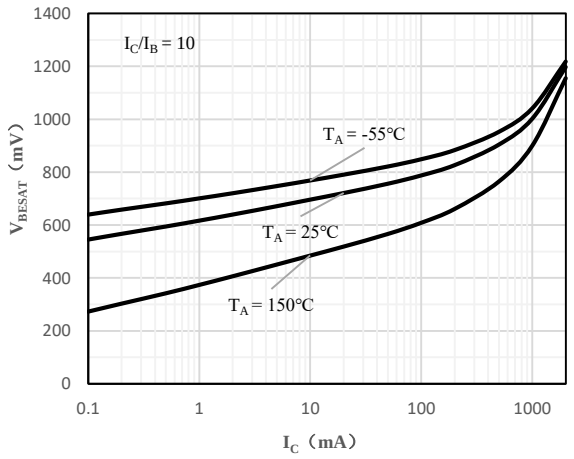


Fig 3 $V_{BE(sat)}$ vs. I_C

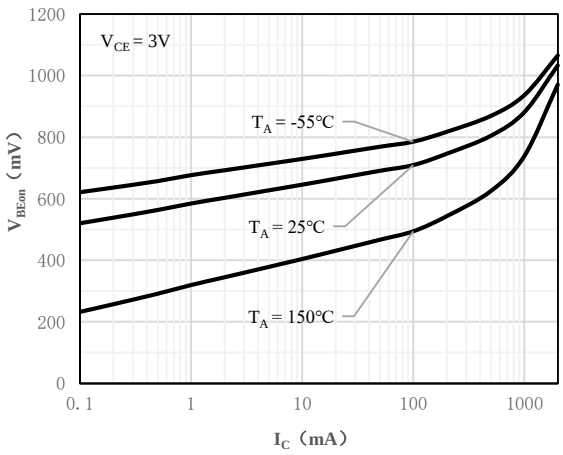


Fig 4 $V_{BE(ON)}$ vs. I_C

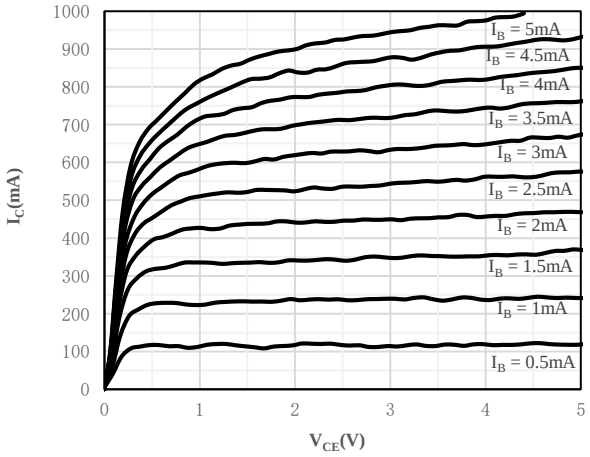


Fig 5 I_C vs. V_{CE}

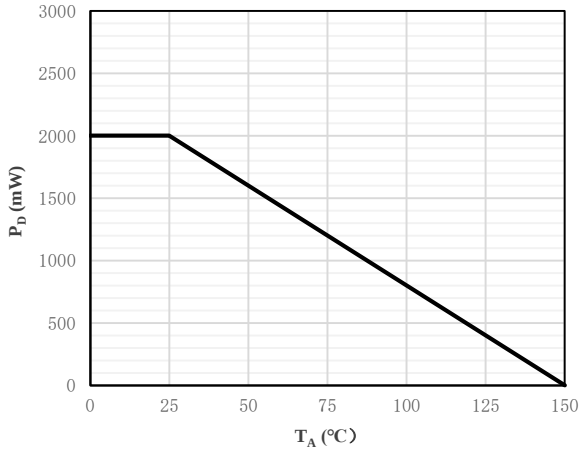


Fig 6 P_D vs. T_A

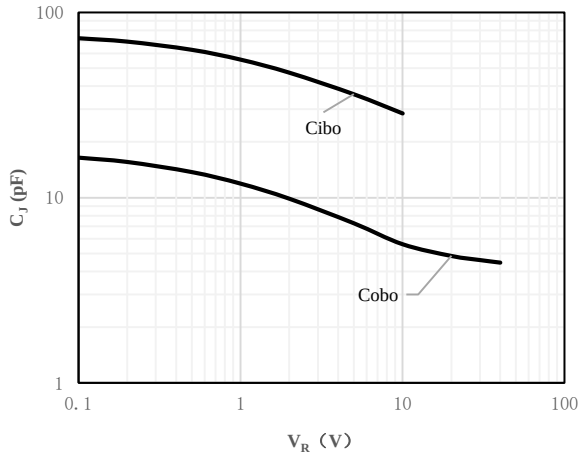
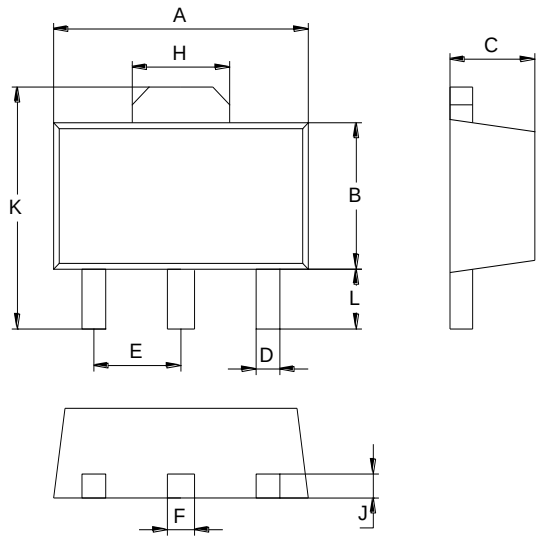


Fig 7 C_J vs. V_R

Package Outline Dimensions (Unit: mm)



SOT-89		
Dimension	**Min.**	**Max.**
A	4.30	4.70
B	2.25	2.65
C	1.30	1.70
D	0.30	0.50
E	1.40	1.60
F	0.38	0.58
H	1.60	1.80
J	0.30	0.50
L	0.90	1.10
K	3.95	4.35

Mounting Pad Layout (Unit: mm)

SOT-89

