SOT-89 Plastic-Encapsulate Transistors

Features

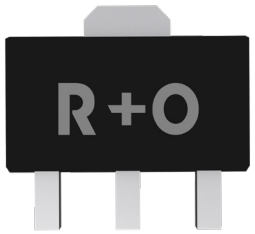
- Power dissipation of 500mW
- High stability and high reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Collector-Base Voltage
VCBO 40V
Collector Current
3.0 Ampere

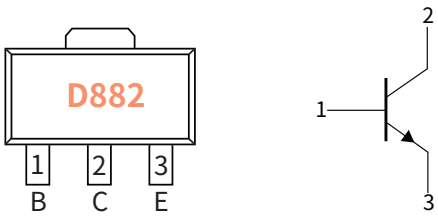
Mechanical Data

- Case: SOT-89
  Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

SOT-89



Function Diagram



Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V_{CBO}	V	40
Collector-Emitter Voltage	V_{CEO}		30
Emitter-Base Voltage	V_{EBO}		6.0
Collector Current	I_C	A	3.0
Collector Power Dissipation	P_C	mW	500
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	-55 ~+150
Typical Thermal Resistance	$R_{\theta J-A}$	°C /W	417

Electrical Characteristics (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition	Min	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	I_C=100μA, I_E=0	40	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		I_C=10mA, I_B=0	30	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		I_E=100μA, I_C=0	6.0	—
Collector-Emitter cut-off current	I_{CEO}	μA	V_{CE}=30V,I_B=0	—	10
Collector-Base cut-off current	I_{CBO}		V_{CB}= 40V,I_E=0	—	1.0
Emitter-Base cut-off current	I_{EBO}		V_{EB}= 6.0V,I_C=0	—	1.0
DC Current Gain	$h_{FE(1)}$	—	I_C=1.0A V_{CE}= 2V	60	400
	$h_{FE(2)}$		I_C=100mA V_{CE}= 2V	32	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	I_C= 2.0A I_B= 0.2A	—	0.5
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	I_C= 2.0A I_B= 0.2A	—	1.5

Classification Of h_{FE}

RANK	R	Q	P	E
Range	60-120	100-200	160-320	200-400

Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f_T	I_C= 0.1A, V_{CE}= 5.0V ,f=10MHz	MHz	50	—	—

Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-89	R1	0.055	1000	7000	21000	7''

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

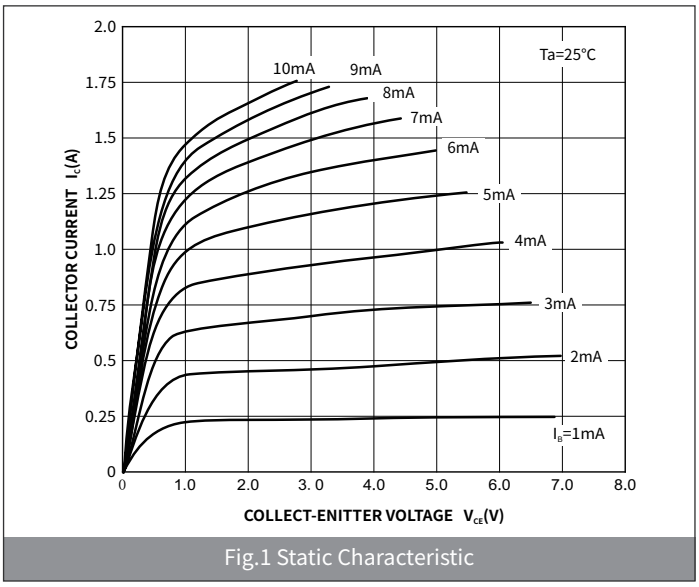


Fig.1 Static Characteristic

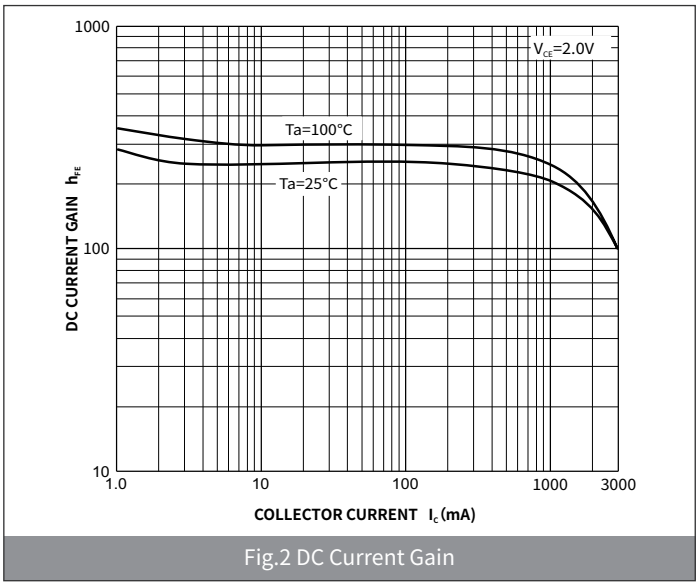


Fig.2 DC Current Gain

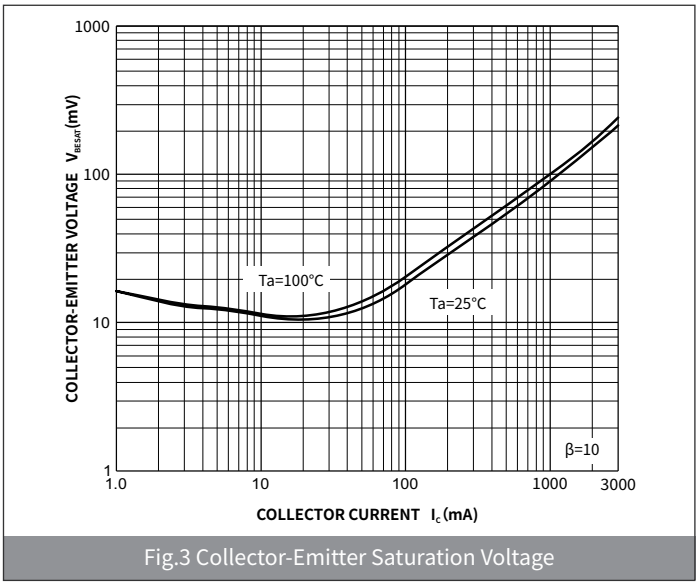


Fig.3 Collector-Emitter Saturation Voltage

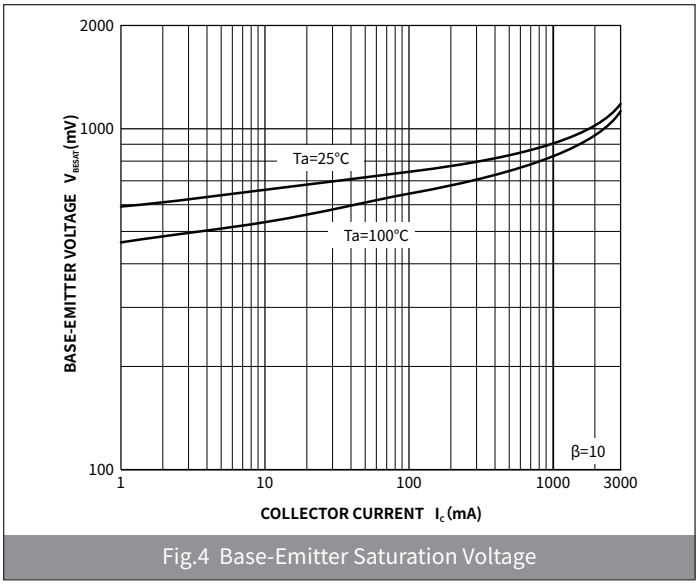


Fig.4 Base-Emitter Saturation Voltage

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

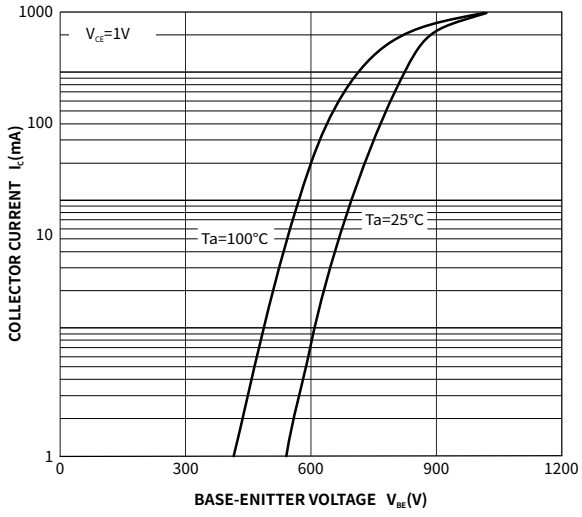


Fig.5 Base-Emitter On Voltage

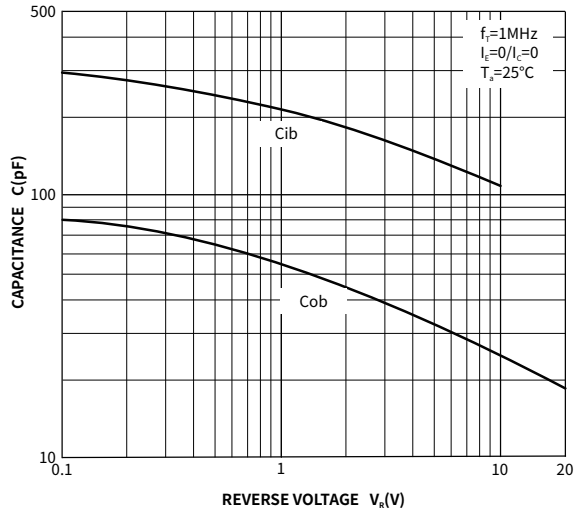
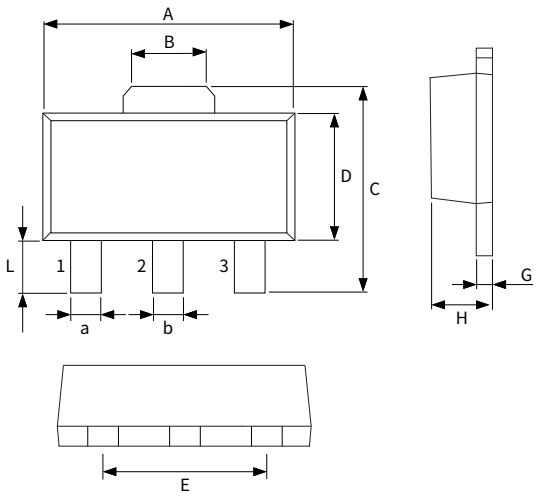


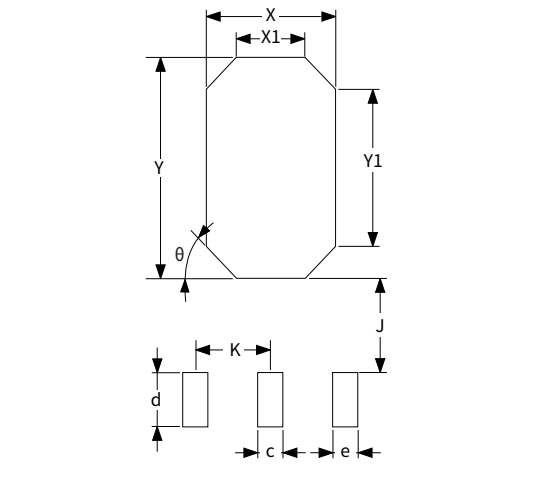
Fig.6 Power Derating Curve

Package Outline Dimensions (SOT-89)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.176	0.184
B	1.6	1.8	0.064	0.072
C	3.9	4.1	0.156	0.164
D	2.4	2.6	0.096	0.104
E	2.9	3.1	0.116	0.124
a	0.41	0.43	0.0164	0.018
b	0.35	0.45	0.014	0.018
L	0.95	1.05	0.037	0.041
G	0.3	0.5	0.012	0.020
H	1.4	1.5	0.055	0.059

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
c	0.80	1.00	0.032	0.04
d	1.30	1.50	0.052	0.060
e	0.70	0.90	0.028	0.036
J	1.80	2.00	0.072	0.080
K	1.40	1.60	0.056	0.064
X	2.50	2.70	0.100	0.108
X1	1.30	1.50	0.052	0.060
Y	4.30	4.50	0.172	0.180
Y1	3.10	3.30	0.124	0.132
θ	-	45°	-	45°