

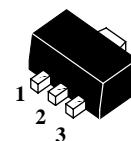
NPN EPITAXIAL PLANAR TRANSISTOR

 Lead(Pb)-Free

Features:

- * Low saturation voltage,
 $V_{CE(sat)} \leq 0.5V @ 2A/50mA$
- * Excellent DC current gain characteristics.

1. BASE
2. COLLECTOR
3. EMITTER



SOT-89

Mechanical Data:

- * Case : Molded Plastic

ABSOLUTE MAXIMUM RATINGS($T_a = 25^\circ C$ Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	10	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current-Continuous	I_C	2	A
Collector Power Dissipation	P_C	0.5	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55 - 150	$^\circ C$

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage $I_C=1\text{mA}, I_E=0$	BV_{CBO}	30	-	-	V
Collector-Emitter Breakdown Voltage $I_C=10\text{mA}, I_B=0$	BV_{CEO}	10	-	-	V
Emitter-Base Breakdown Voltage $I_C=0, I_E=1\text{mA}$	BV_{EBO}	6	-	-	V
Collector Cut-Off Current $I_E=0, V_{CB}=30\text{V}$	I_{CBO}	-	-	0.1	μA
Emitter-Cut-Off Current $I_C=0, V_{EB}=6\text{V}$	I_{EBO}	-	-	0.1	μA

ON CHARACTERISTICS*

DC Current Gain $I_C=0.5\text{A}, V_{CE}=1\text{V}$ $I_C=2\text{A}, V_{CE}=1\text{V}$	$h_{FE(1)}$ $h_{FE(2)}$	140 70	- -	600 -	- -
Collector-Emitter Saturation Voltage $I_C=2\text{A}, I_B=50\text{mA}$	$V_{CE(sat)}$	-	-	0.5	V
Base-emitter on voltage $I_C=2\text{A}, V_{CE}=1\text{V}$	$V_{BE(on)}$	-	-	1.5	V

*Pulse Test: Pluse Width $\leq 380\mu\text{s}$, Duty Cycle $\leq 2\%$.

DYNAMIC CHARACTERISTICS

Transition Frequency $I_C=0.5\text{A}, V_{CE}=1\text{V}$	f_T	-	150	-	MHz
Collector Output Capacitance $I_E=0, V_{CB}=10\text{V}, f=1\text{MHz}$	C_{ob}	-	27	-	pF

CLASSIFICATION OF $h_{FE(1)}$

Rank	A	B	C	D
Range	140-240	200-330	300-450	420-600
Marking	SA	SB	SC	SD

Typical Characteristics

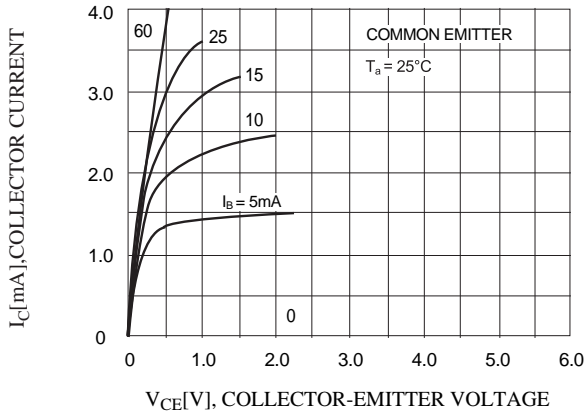


Fig.1 $I_C - V_{CE}$

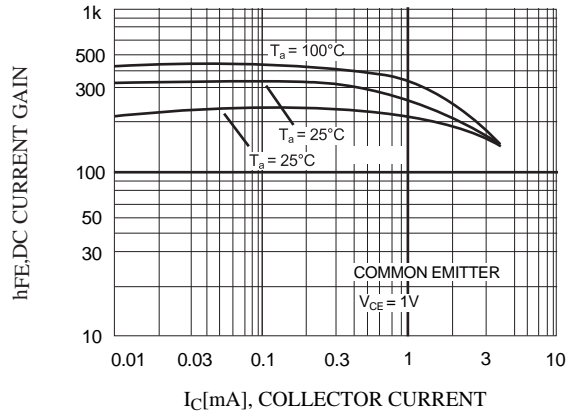


Fig.2 $h_{FE} - I_C$

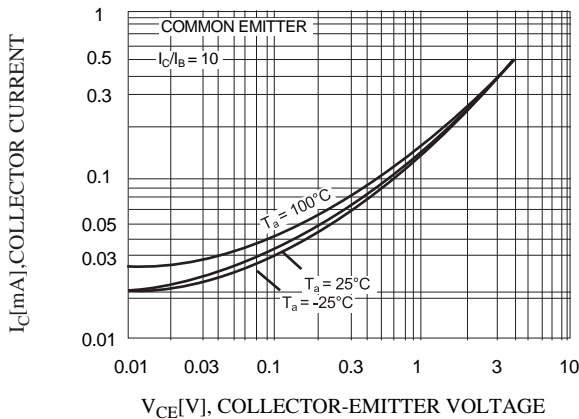


Fig.3 $V_{CE(sat)} - I_C$

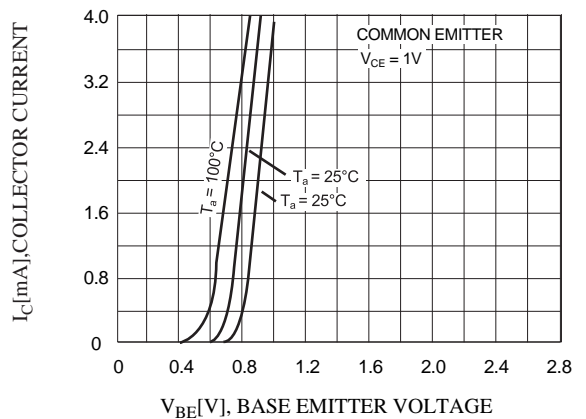


Fig.4 $I_C - V_{BE}$

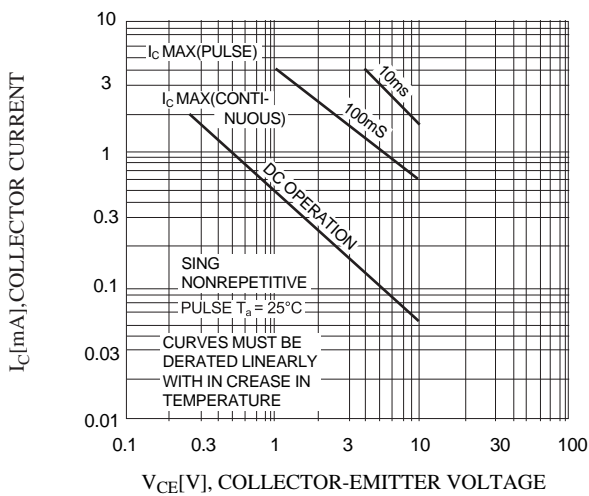


Fig.5 SAFE OPERATING AREA

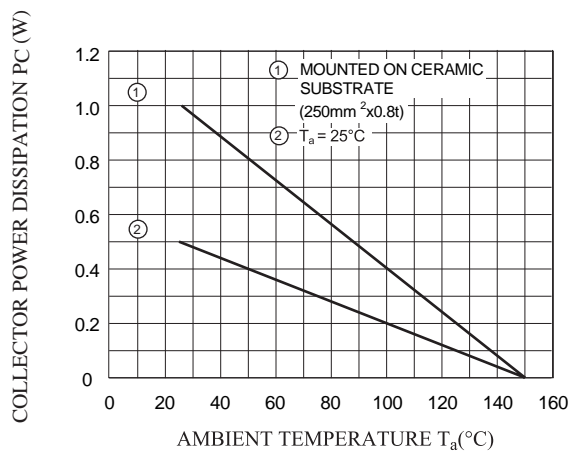
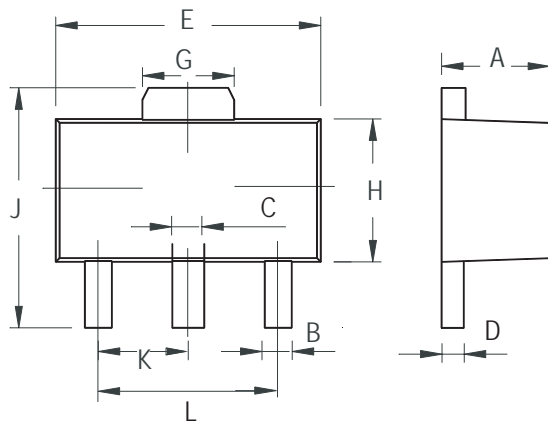


Fig.6 $P_C - T_a$

SOT-89 Outline Dimensions

unit:mm



SOT-89		
Dim	Min	Max
A	1.400	1.600
B	0.320	0.520
C	0.360	0.560
D	0.350	0.440
E	4.400	4.600
G	1.400	1.800
H	2.300	2.600
J	3.940	4.250
K	1.500TYP	
L	2.900	3.100