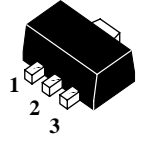


NPN EPITAXIAL PLANAR TRANSISTOR

 Lead(Pb)-Free

1. BASE
2. COLLECTOR
3. EMITTER



SOT-89

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

Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current-Continuous	I_C	2.0	A
Collector Power Dissipation	P_C	0.5	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage $I_C=1\text{mA}, I_E=0$	BV_{CBO}	50	-	-	V
Collector-Emitter Breakdown Voltage $I_C=10\text{mA}, I_B=0$	BV_{CEO}	50	-	-	V
Emitter-Base Breakdown Voltage $I_C=0, I_E=1\text{mA}$	BV_{EBO}	5	-	-	V
Collector Cut-Off Current $I_E=0, V_{CB}=50\text{V}$	I_{CBO}	-	-	0.1	μA
Emitter-Cut-Off Current $I_C=0, V_{EB}=5\text{V}$	I_{EBO}	-	-	0.1	μA

ON CHARACTERISTICS

DC Current Gain $I_C=0.5\text{A}, V_{CE}=2\text{V}$ $I_C=1.5\text{A}, V_{CE}=2\text{V}$	$h_{FE(1)}$ $h_{FE(2)}$	70 40	- -	240 -	-
Collector-Emitter Saturation Voltage $I_C=1\text{A}, I_B=50\text{mA}$	$V_{CE(sat)}$	-	-	0.5	V
Base-Emitter Saturation Voltage $I_C=1\text{A}, I_B=50\text{mA}$	$V_{BE(sat)}$	-	-	1.2	V

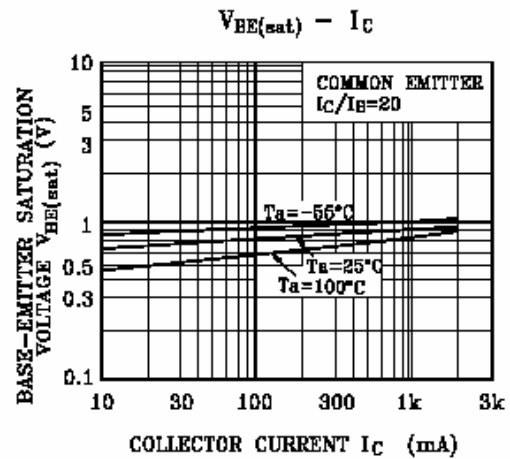
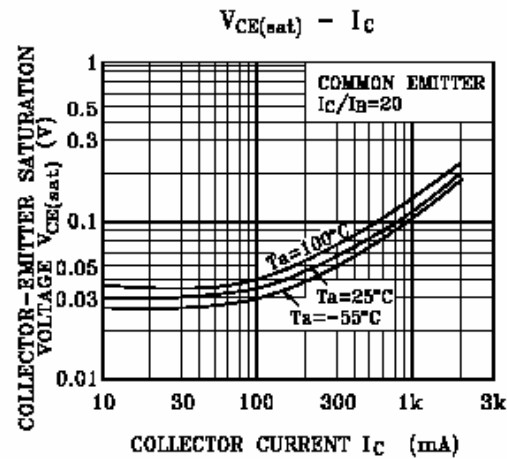
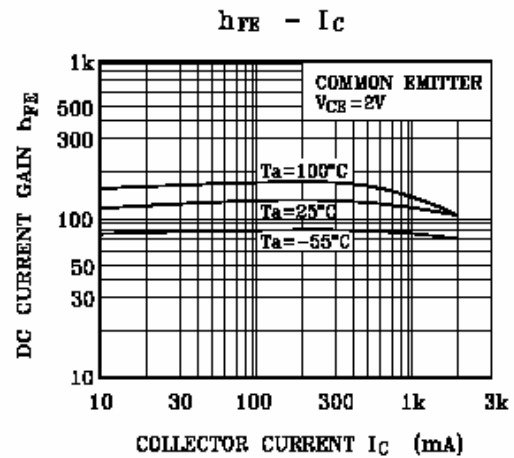
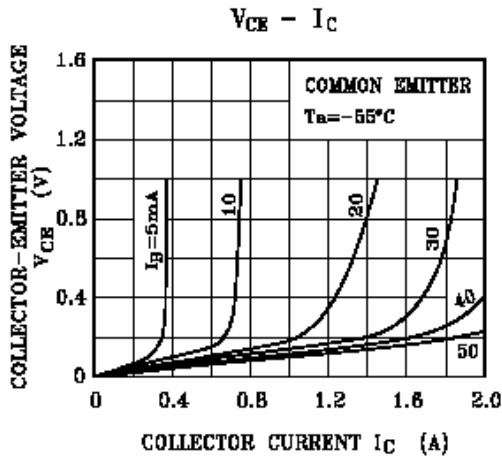
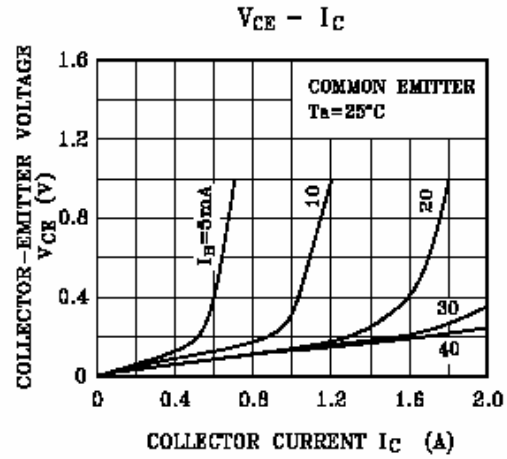
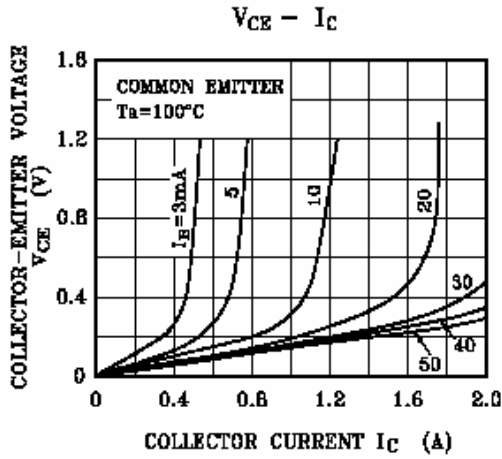
DYNAMIC CHARACTERISTICS

Transition Frequency $I_C=50\text{mA}, V_{CE}=2\text{V}$	f_T	-	120	-	MHz
Collector Output Capacitance $I_E=0, V_{CB}=10\text{V}, f=1\text{MHz}$	C_{ob}	-	30	-	pF
Switching Time $V_{CC}=30\text{V}, I_C=1\text{A}, I_{B1}=-I_{B2}=-0.05\text{A}$	Turn on Time t_{on}	-	0.1	-	μs
Switching Time $V_{CC}=30\text{V}, I_C=1\text{A}, I_{B1}=-I_{B2}=-0.05\text{A}$	Storage Time t_{stg}	-	1.0	-	μs
Switching Time $V_{CC}=30\text{V}, I_C=1\text{A}, I_{B1}=-I_{B2}=-0.05\text{A}$	Fall Time t_f	-	0.1	-	μs

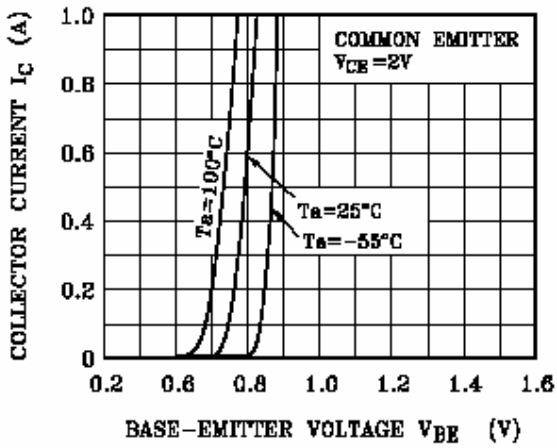
CLASSIFICATION OF $h_{FE(1)}$

Rank	O	Y
Range	70-140	120-240
Marking	UO	UY

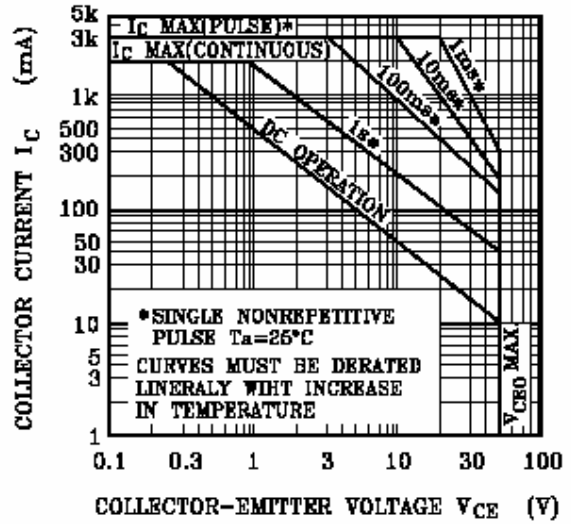
Typical Characteristics



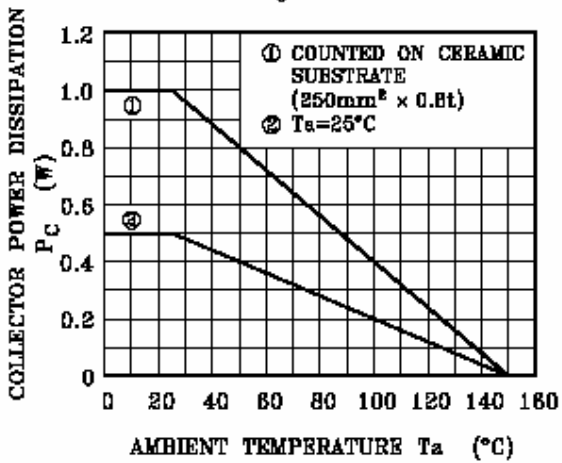
$I_C - V_{BE}$



SAFE OPERATING AREA

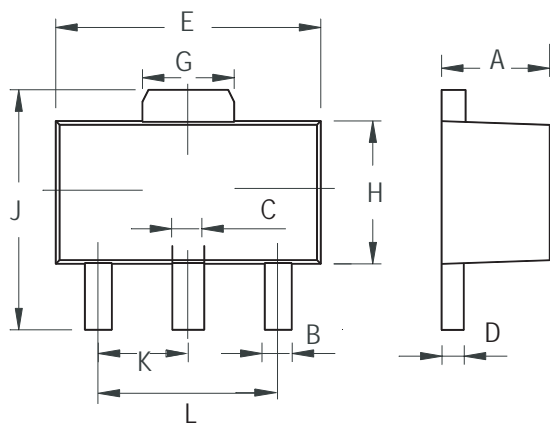


$P_C - T_a$



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