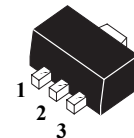


PNP Epitaxial Planar Transistors

(Pb) Lead(Pb)-Free

SOT-89


1. BASE
2. COLLECTOR
3. EMITTER

ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

Rating	Symbol	Limits	Unit
Collector-Base Voltage	V _{CBO}	-180	V
Collector-Emitter Voltage	V _{CEO}	-160	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current	I _{C(DC)}	-1.5	A
	I _{C(Pulse)}	-3	
Collector Power Dissipation	P _D	1	W
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

Device Marking

WTM649A=649A

ELECTRICAL CHARACTERISTICS(T_A=25°C unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage I _C =-1mA, I _E =0	BV _{CBO}	-180	-	-	V
Collector-Emitter Breakdown Voltage I _C =-10mA, I _B =0	BV _{CEO}	-160	-	-	V
Emitter-Base Breakdown Voltage I _E =-1mA, I _C =0	BV _{EBO}	-5	-	-	V
Collector Cutoff Current V _{CB} =-160V, I _E =0	I _{CBO}	-	-	-10	μA

ELECTRICAL CHARACTERISTICS (T_A=25°C Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

ON CHARACTERISTICS⁽¹⁾

DC Current Gain V _{CE} =-5V, I _C =-150mA V _{CE} =-5V, I _C =-500mA	h _{FE1} h _{FE2}	60 30	- -	200 -	-
Collector-Emitter Saturation Voltage I _C =-600mA, I _B =-50mA	V _{CE(sat)}	-	-	-1	V
Base-Emitter Saturation Voltage V _{CE} =-5V, I _C =-150mA	V _{BE(on)}	-	-	-1.5	V

1. Pulse Test: Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

DYNAMIC CHARACTERISTICS

Transition Frequency V _{CE} =-5V, I _C =-150mA, f=100MHz	f _T	-	140	-	MHz
Output Capacitance V _{CB} =-10V, f=1MHz	C _{ob}	-	27	-	pF

CLASSIFICATION OF h_{FE1}

Rank	B	C
h _{FE1}	60-120	100-200

ELECTRICAL CHARACTERISTIC CURVES

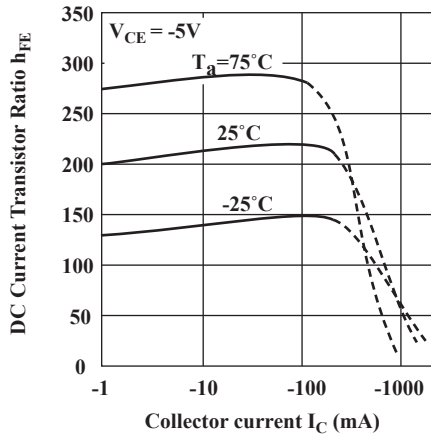


Fig.1 Current Gain & Collector Current

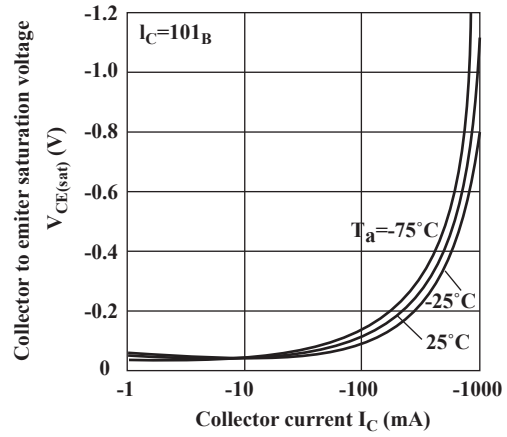


Fig.2 Saturation Voltage & Collector Current

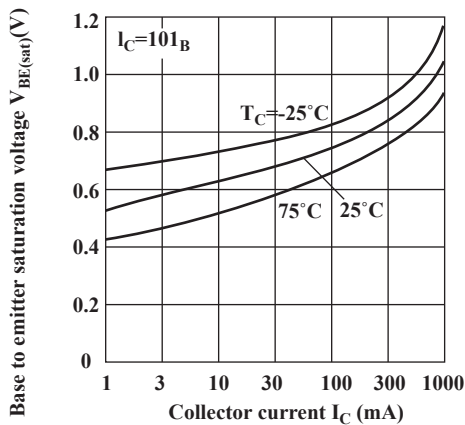


Fig.3 Saturation Voltage & Collector Current

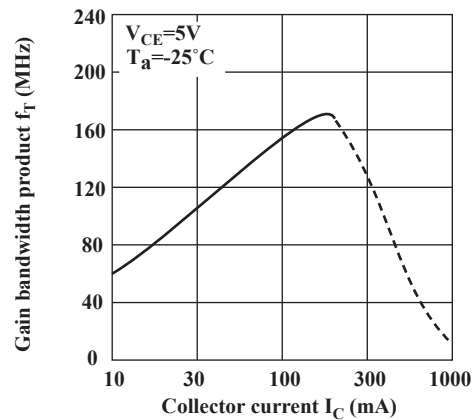


Fig.4 Gain Bandwidth Product & Collector Current

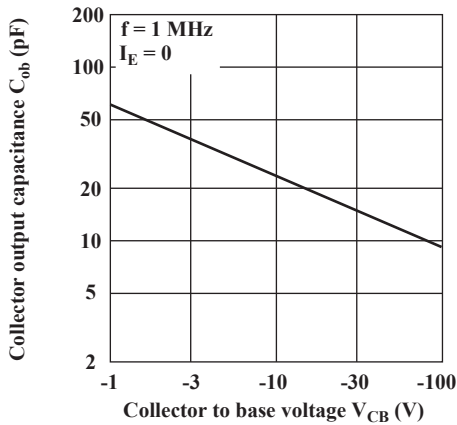


Fig.5 Capacitance & Collector to Base Voltage

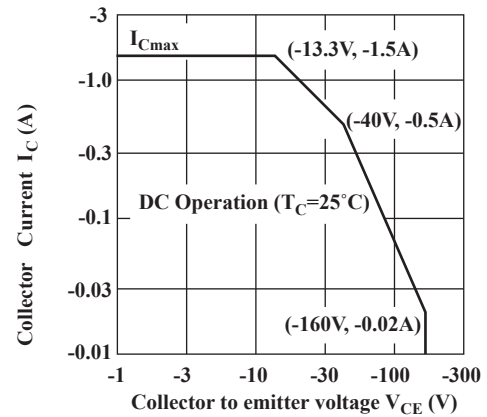
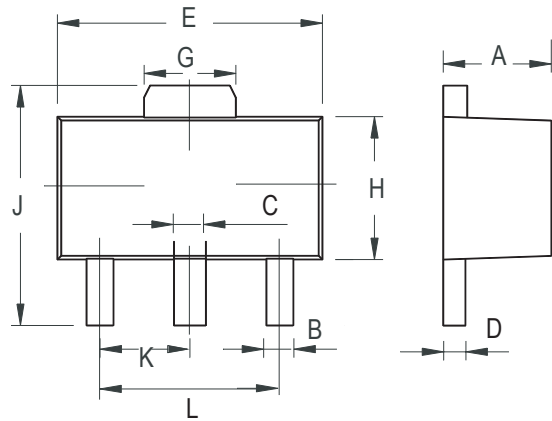


Fig.6 Safe Operating Area

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