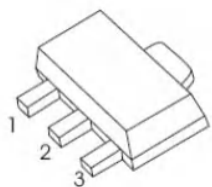


FEATURES

- High voltage
- Large continuous collector current capability



1.Base
2.Collector
3.Emitter

■ Simplified outline(SOT-89)

1013

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

MAXIMUM RATINGS (T_a=25 °C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	-160	V
V _{CEO}	Collector-Emitter Voltage	-160	V
V _{EB0}	Emitter-Base Voltage	-6	V
I _C	Collector Current -Continuous	-1	A
P _C	Collector Power Dissipation	0.5	W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~+150	°C
R _{θJA}	Thermal Resistance from Junction to Ambient	250	°C/W

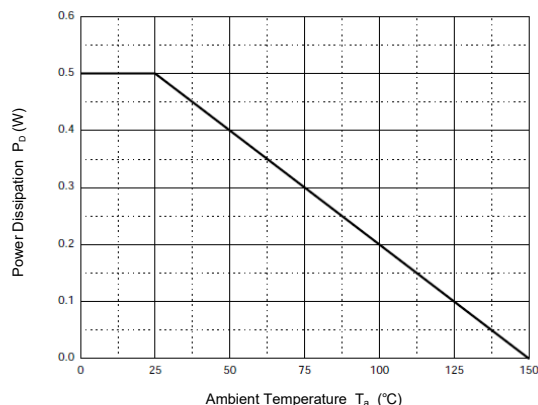
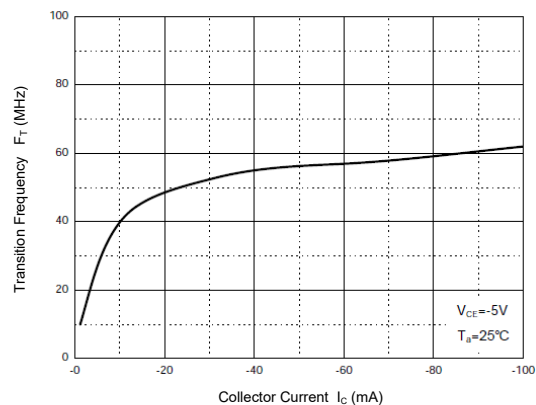
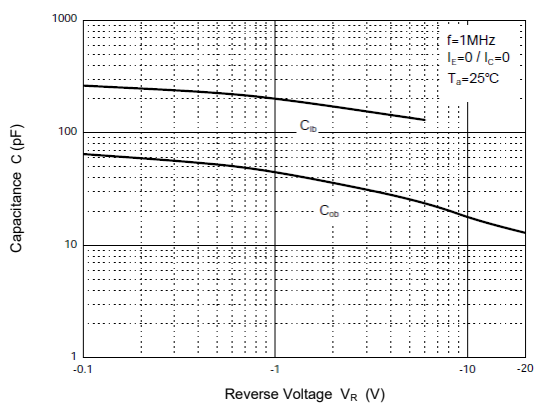
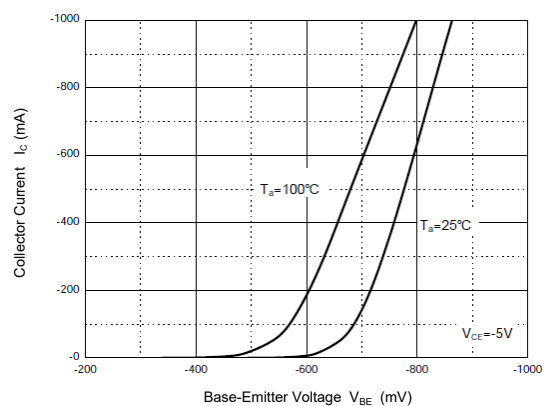
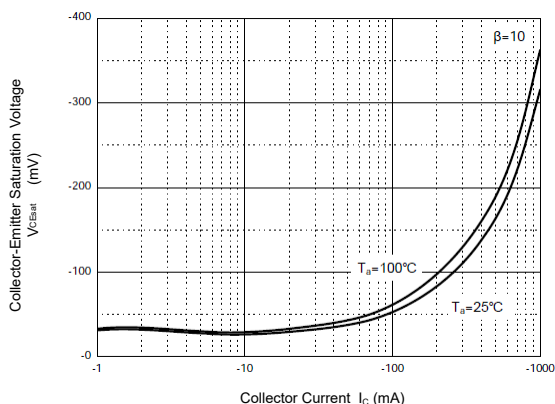
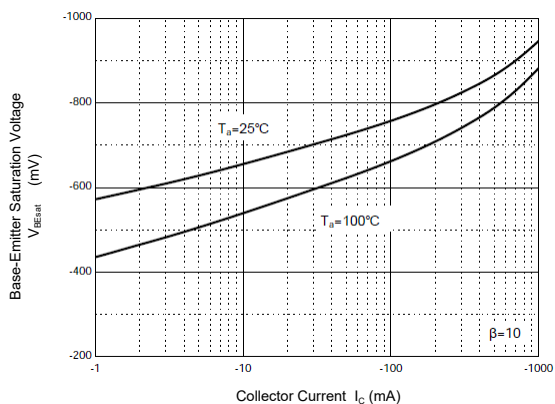
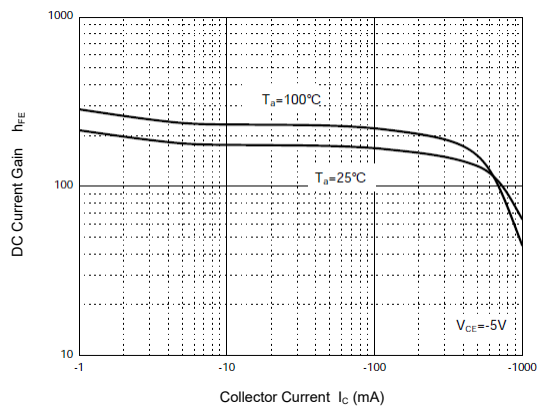
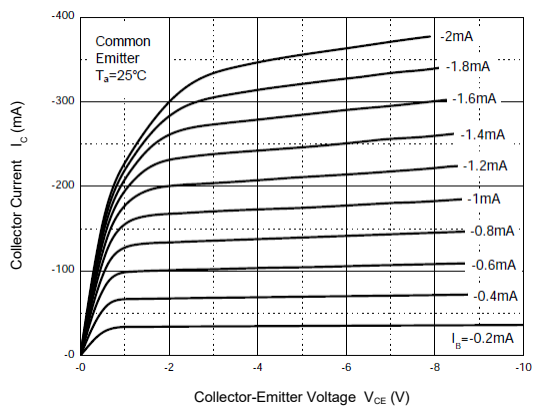
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}$, $I_E=0$	-160		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}$, $I_B=0$	-160		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}$, $I_C=0$	-6		V
Collector cut-off current	I_{CBO}	$V_{CB}=-150\text{V}$, $I_E=0$		-1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-6\text{V}$, $I_C=0$		-1	μA
DC current gain	h_{FE}	$V_{CE}=-5\text{V}$, $I_C=-200\text{mA}$	60	320	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$		-1.5	V
Base-emitter voltage	V_{BE}	$I_C=-5\text{mA}$, $V_{CE}=-5\text{V}$		-0.75	V
Transition frequency	f_T	$V_{CE}=-5\text{V}$, $I_C=-200\text{mA}$	15		MHz

CLASSIFICATION OF h_{FE}

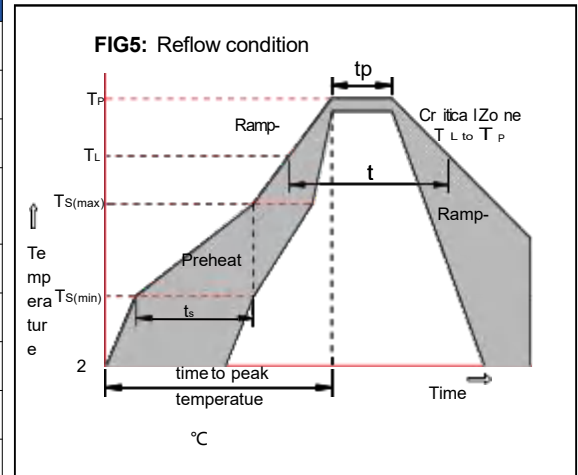
Rank	R	O	Y
Range	60-120	100-200	160-320

RATING AND CHARACTERISTIC CURVES



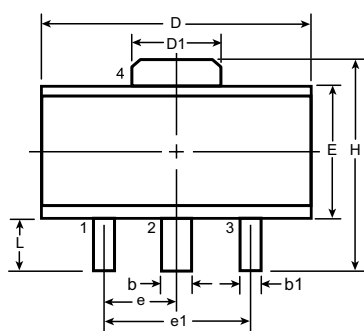
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max ($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature (T_L) (Liquid us)	+217 °C
	-Temperature (t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C

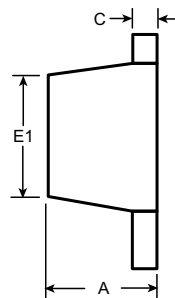


Package Dimensions & Suggested Pad Layout

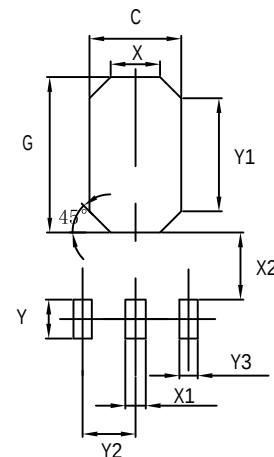
SOT89



Top View



Side View

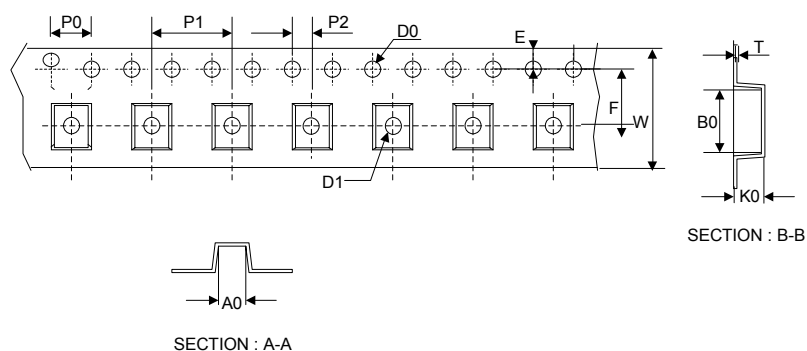


Symbol		A	b	b1	C	D	D1	E	E1	e	e1	H	L
Dimensions (mm)	MIN	1.40	0.44	0.36	0.3	4.40	1.50	2.29	2.00 ^f	1.50 BSC	3.00 BSC	3.94	0.89
	NOM	-	-	-	-	-	-	-	-			-	-
	MAX	1.60	0.56	0.48	0.5	4.60	1.75	2.60	2.29			4.25	1.20

Dimensions	Value (in mm)
C	2.50
G	3.60
X	1.40
X1	0.90
X2	0.90
Y	1.40
Y1	2.60
Y2	1.50
Y3	0.90

Tape & reel specification

Tape



Symbol	Dimension (mm)
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P0	4.00±0.20
----	-----------

P1	8.00±0.20
----	-----------

P2	2.00±0.20
----	-----------

D0	1.60±0.20
----	-----------

D1	1.60±0.20
----	-----------

E	1.75±0.20
---	-----------

F	7.50±0.15
---	-----------

W	16.00±0.20
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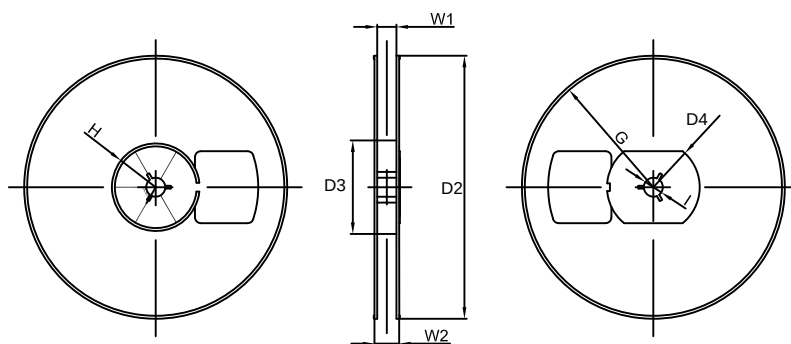
A0	6.30±0.20
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B0	8.25±0.20
----	-----------

K0	2.60±0.20
----	-----------

T	0.23±0.10
---	-----------

13" Reel



D2	180.0±5.0
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D3	60Min.
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D4	R32.0±2.0
----	-----------

G	R86.5±2.0
---	-----------

H	R30.0±2.0
---	-----------

I	13.0±2.0
---	----------

W1	13.20±2.0
----	-----------

W2	16.50±2.0
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Quantity: 1000PCS