



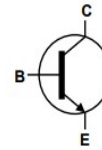
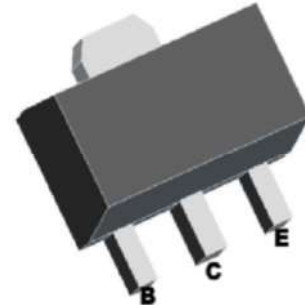
1. Features

- Low collector-to-emitter saturation voltage.
- High current capability
- Improved device reliability due to reduced heat generation
- Complement the PBSS5240T
- Battery management applications
- Supply line switching circuits
- DC/DC converter applications
- Strobe flash units

2. Mechanical Data

- Case:Molded Plastic,SOT-89 .
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking:ZE
- Mounting Position : Any.

SOT-89



B. BASE
C. COLLECTOR
E. EMITTER

3. Maximum Ratings

Electrical Characteristics Rating at 25°C ambient temperature unless otherwise specified.

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	2	A
Collector Current(Pulse)	I_{CP}	3	A
Collector Power Dissipation	P_C	0.5	W
Junction Temperature	T_j	-55~+150	°C
Storage Temperature	T_{stg}	-55~+150	°C

Thermal Characteristics

Characteristics	Symbol	Condition	Value	Unit
Thermal resistance from junction to ambient	$R_{th(j-a)}$	in free air; note1	417	K / W
		in free air; note2	260	K / W

Notes

- 1.Device mounted on a printed-circuit board, single sided copper, tinplated and standard footprint.
- 2.Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm²



4. Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Characteristics	Symbol	Condition	Min	TYP	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	40	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$, $I_B=0$	40	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$, $I_C=0$	5	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB}=30\text{V}$, $I_E=0$	-	-	100	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=4\text{V}$, $I_C=0$	-	-	100	nA
DC current gain	h_{FE}	$V_{CE}=2\text{V}$, $I_B=100\text{mA}$	350	-	-	-
		$V_{CE}=2\text{V}$, $I_B=500\text{mA}$	300	-	-	-
		$V_{CE}=2\text{V}$, $I_B=1\text{A}$	300	-	-	-
		$V_{CE}=2\text{V}$, $I_B=2\text{A}$	150	-	-	-
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C=100\text{mA}$, $I_B=10\text{mA}$	-	-	70	mV
		$I_C=500\text{mA}$, $I_B=50\text{mA}$	-	-	100	mV
		$I_C=750\text{mA}$, $I_B=15\text{mA}$	-	-	180	mV
		$I_C=1\text{A}$, $I_B=50\text{mA}$	-	-	180	mV
		$I_C=2\text{A}$, $I_B=200\text{mA}$	-	-	320	mV
Equivalent on-resistance	$R_{CE(sat)}$	$I_C=500\text{mA}$, $I_B=50\text{mA}$	-	-	200	m Ω
Base -emitter saturation voltage*	$V_{BE(sat)}$	$I_C=2\text{A}$, $I_B=200\text{mA}$	-	-	1.1	V
Base-emitter turn on voltage	$V_{BE(on)}$	$V_{CE}=2\text{V}$, $I_B=100\text{mA}$	-	-	0.75	V
Transition frequency	f_T	$V_{CE}=10\text{V}$, $I_E=100\text{mA}$, $f=100\text{MHz}$	100	-	-	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$	-	15	-	pF

* Pulse Test: PW=300 μ s, duty Cycle=2% Pulsed



5. Rating And Characteristic Curves

Fig.1 Static Characteristic

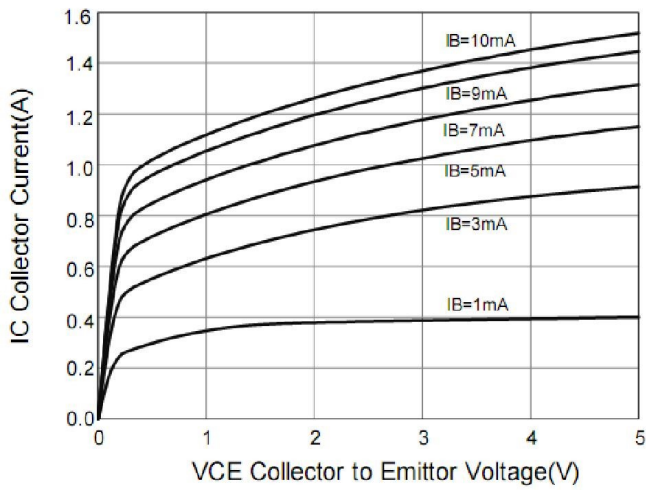


Fig.2 DC current Gain

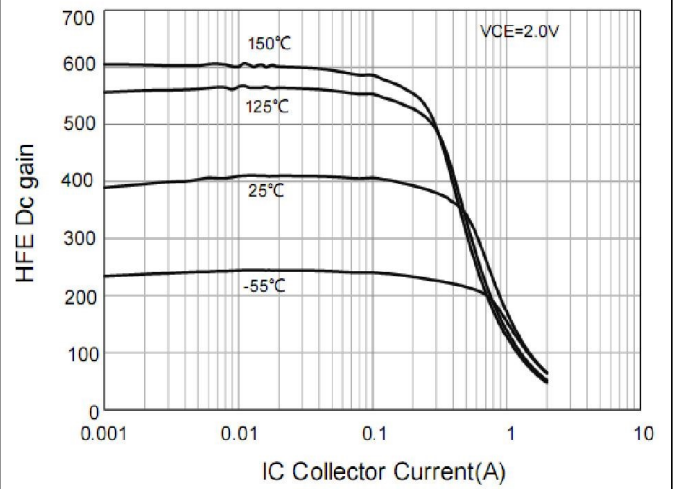


Fig.3 Collector-Emitter Saturation Voltage

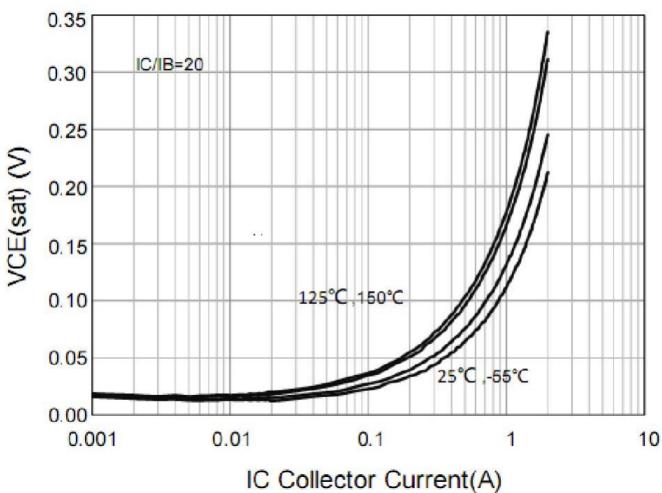


Fig.4 Base-Emitter Saturation Voltage

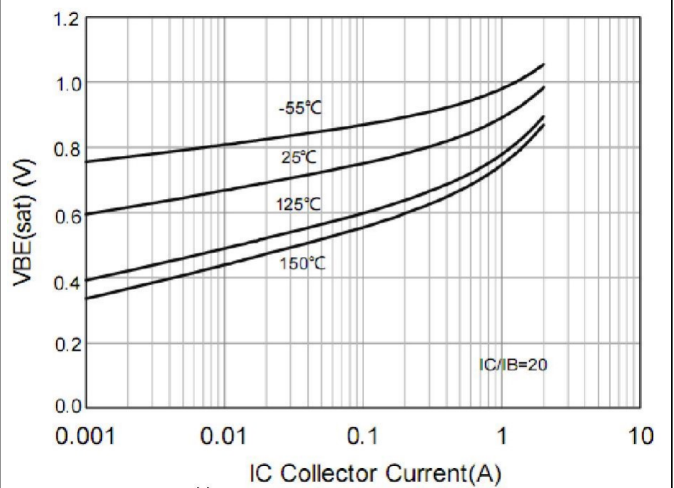


Fig.5 Base-Emitter on Voltage

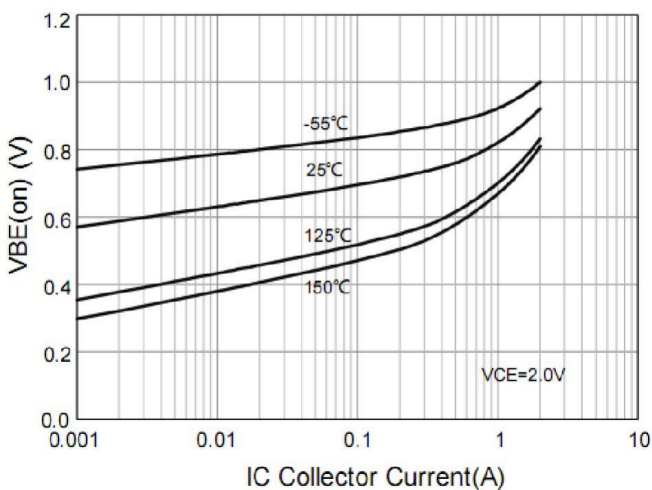
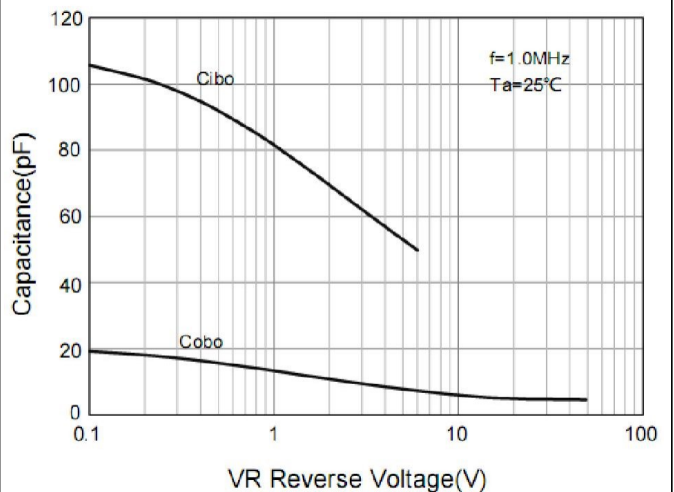
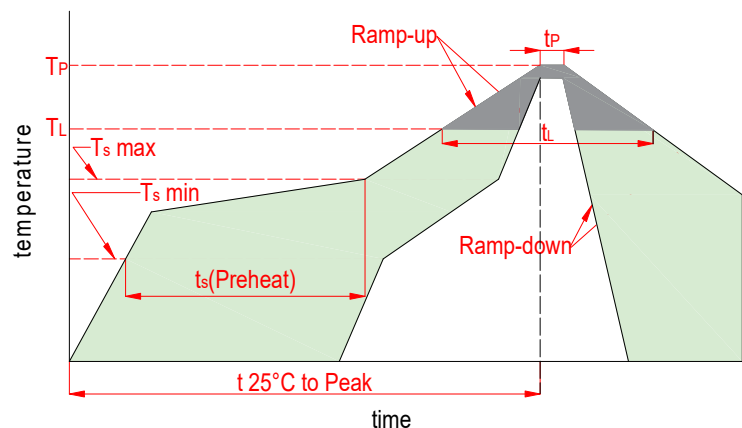


Fig.6 Output Capacitance



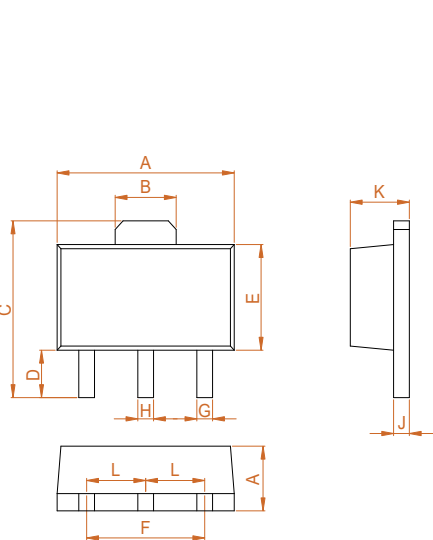


6. Soldering Parameters



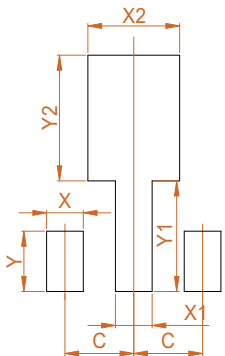
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} ℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_p)		8 minutes max
Do not exceed		260℃

7. Dimensions

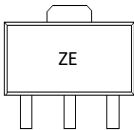


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.169	0.185	4.300	4.700
B	0.055	0.071	1.400	1.800
C	0.154	0.167	3.900	4.250
D	0.035	0.047	0.900	1.200
E	0.091	0.106	2.300	2.700
F	0.118		3.000	
G	0.013	0.024	0.320	0.600
H	0.013	0.024	0.320	0.600
J	0.013	0.020	0.340	0.500
K	0.055	0.063	1.400	1.600
L	0.059		1.500	
X	0.031		0.800	
Y	0.047		1.200	
X1	0.031		0.800	
Y1	0.087		2.200	
X2	0.079		2.000	
Y2	0.098		2.500	
C	0.059		1.500	

Mounting PAD Layout



8. Part Marking System



9. Package Information

Package	Part Number	Marking Code	Quantity(pcs)
SOT-89	PBSS4240T	ZE	1000



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