

ZXTP2008Z

30V PNP LOW SATURATION MEDIUM POWER TRANSISTOR IN SOT89

SUMMARY

$BV_{CEO} = -30V$; $R_{SAT} = 24m\Omega$; $I_C = -5.5A$

DESCRIPTION

Packaged in the SOT89 outline this new low saturation 30V PNP transistor offers low on state losses making it ideal for use in DC-DC circuits, line switching and various driving and power management functions.



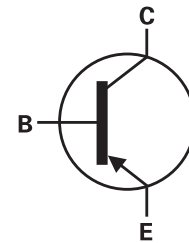
SOT89

FEATURES

- 5.5 amps continuous current
- Up to 20 amps peak current
- Very low saturation voltages
- Exceptional gain linearity down to 10mA
- Excellent high current gain hold up

APPLICATIONS

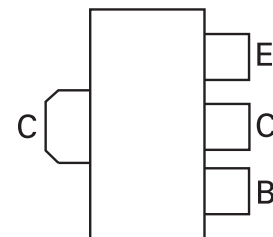
- DC - DC converters
- MOSFET gate drivers
- Charging circuits
- Power switches
- Motor control



ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXTP2008ZTA	7"	12mm embossed	1000 units

PINOUT



TOP VIEW

DEVICE MARKING

949

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ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-base voltage	BV_{CBO}	-50	V
Collector-emitter voltage	BV_{CEO}	-30	V
Emitter-base voltage	BV_{EBO}	-7	V
Continuous collector current ^(a)	I_C	-5.5	A
Peak pulse current	I_{CM}	-20	A
Power dissipation at $T_A = 25^\circ\text{C}$ ^(a)	P_D	1.5	W
Linear derating factor		12	mW/°C
Power dissipation at $T_A = 25^\circ\text{C}$ ^(b)	P_D	2.1	W
Linear derating factor		16.8	mW/°C
Operating and storage temperature range	T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient ^(a)	$R_{\theta JA}$	83	°C/W
Junction to Ambient ^(b)	$R_{\theta JA}$	60	°C/W

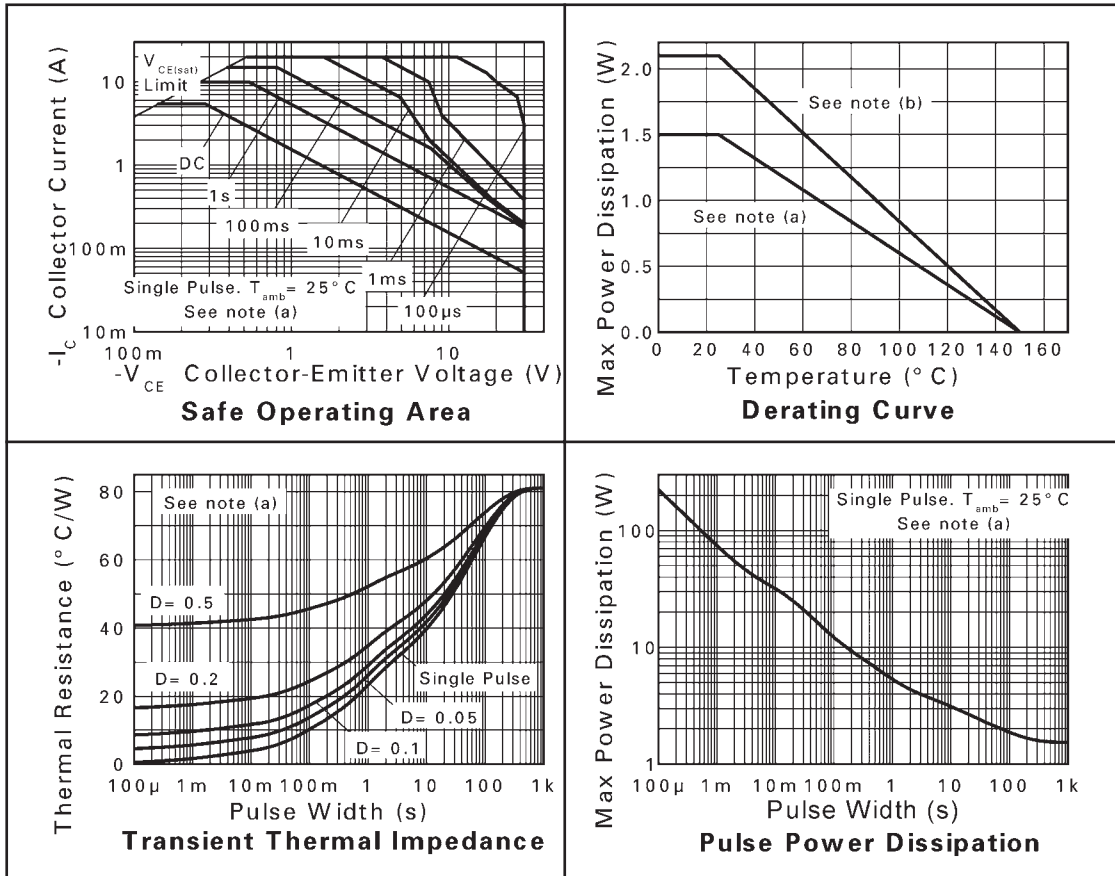
NOTES

(a) For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

(b) For a device surface mounted on 50mm x 50mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

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CHARACTERISTICS



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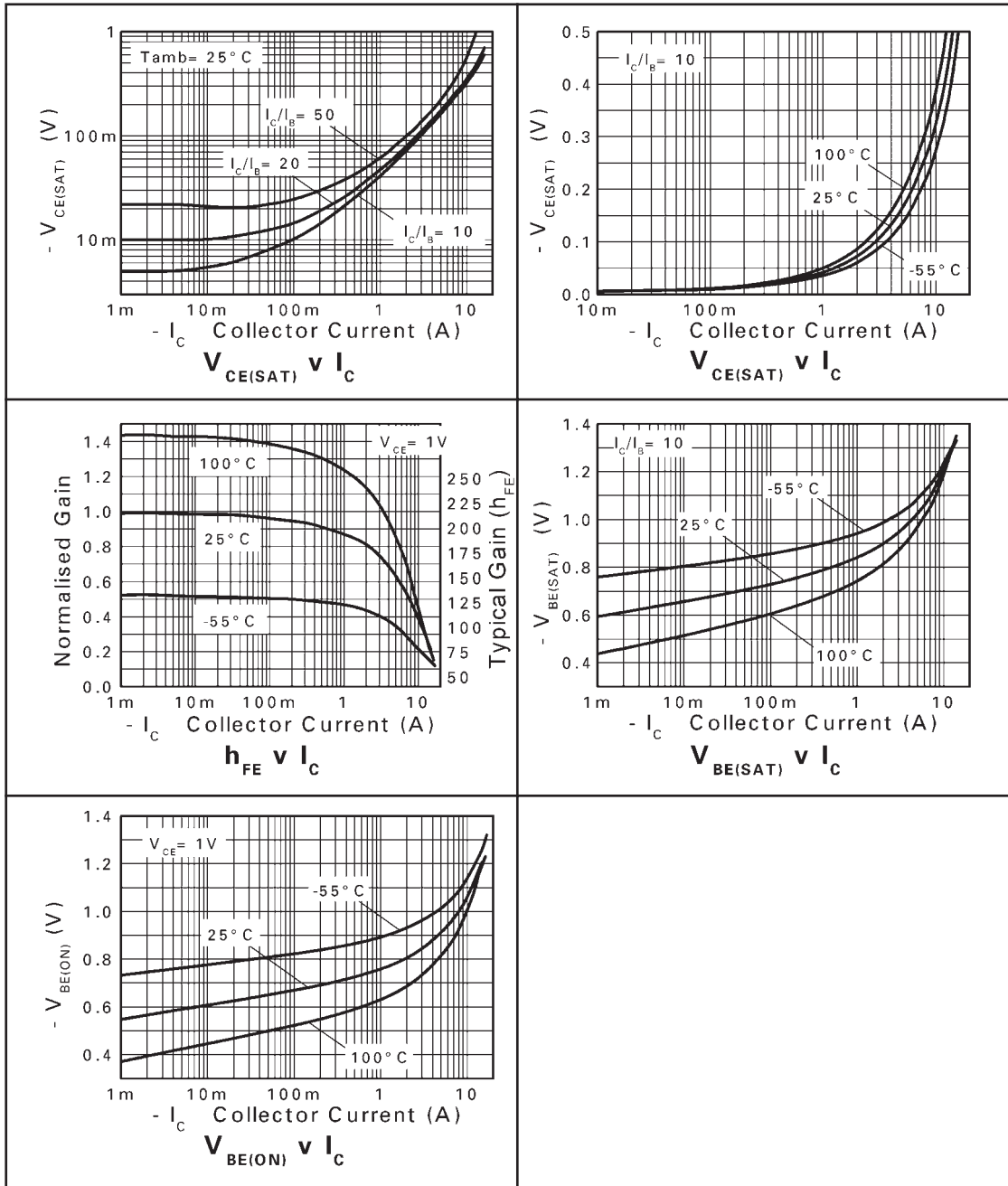
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-base breakdown voltage	BV_{CBO}	-50	-70		V	$I_C = -100\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CER}	-50	-70		V	$I_C = -1\mu\text{A}$, $R_B < 1\text{k}\Omega$
Collector-emitter breakdown voltage	BV_{CEO}	-30	-40		V	$I_C = -10\text{mA}$ *
Emitter-base breakdown voltage	BV_{EBO}	-7.0	-8.0		V	$I_E = -100\mu\text{A}$
Collector cut-off current	I_{CBO}		<-1	-20 -0.5	nA μA	$V_{CB} = -40\text{V}$ $V_{CB} = -40\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Collector cut-off current	I_{CER} $R < 1\text{k}\Omega$		<-1	-20 -0.5	nA μA	$V_{CB} = -40\text{V}$ $V_{CB} = -40\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Emitter cut-off current	I_{EBO}		<-1	-10	nA	$V_{EB} = -6\text{V}$
Collector-emitter saturation voltage	$V_{CE(SAT)}$		-25 -35 -55 -55 -130	-40 -55 -80 -80 -175	mV mV mV mV mV	$I_C = -0.5\text{A}$, $I_B = -20\text{mA}$ * $I_C = -1\text{A}$, $I_B = -100\text{mA}$ * $I_C = -1\text{A}$, $I_B = -20\text{mA}$ * $I_C = -2\text{A}$, $I_B = -200\text{mA}$ * $I_C = -5.5\text{A}$, $I_B = -500\text{mA}$ *
Base-emitter saturation voltage	$V_{BE(SAT)}$		-970	-1070	mV	$I_C = -5.5\text{A}$, $I_B = -500\text{mA}$ *
Base-emitter turn-on voltage	$V_{BE(ON)}$		-860	-960	mV	$I_C = -5.5\text{A}$, $V_{CE} = -1\text{V}$ *
Static forward current transfer ratio	h_{FE}	100 100 70 10	225 200 145 20	300		$I_C = -10\text{mA}$, $V_{CE} = -1\text{V}$ * $I_C = -1\text{A}$, $V_{CE} = -1\text{V}$ * $I_C = -5\text{A}$, $V_{CE} = -1\text{V}$ * $I_C = -20\text{A}$, $V_{CE} = -1\text{V}$ *
Transition frequency	f_T		110		MHz	$I_C = -100\text{mA}$, $V_{CE} = -10\text{V}$ $f = 50\text{MHz}$
Output capacitance	C_{OBO}		83		pF	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$ *
Switching times	t_{ON} t_{OFF}		43 230		ns	$I_C = -1\text{A}$, $V_{CC} = -10\text{V}$, $I_{B1} = -I_{B2} = -100\text{mA}$

NOTES

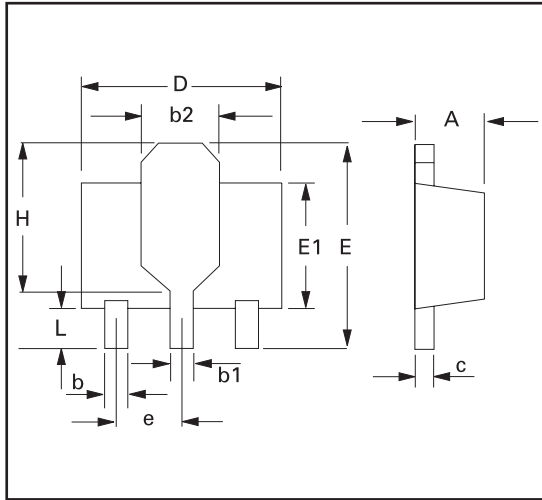
* Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS

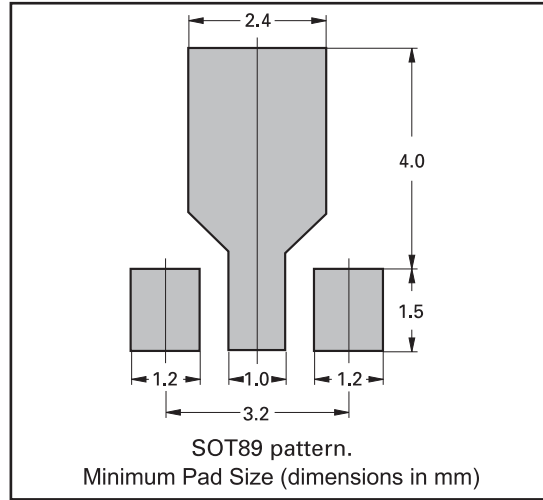


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PACKAGE OUTLINE



PAD LAYOUT DETAILS



Controlling dimensions are in millimeters. Approximate conversions are given in inches

PACKAGE DIMENSIONS

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	1.40	1.60	0.550	0.630	e	1.40	1.50	0.055	0.059
b	0.38	0.48	0.015	0.019	E	3.75	4.25	0.150	0.167
b1	-	0.53	-	0.021	E1	-	2.60	-	0.102
b2	1.50	1.80	0.060	0.071	G	2.90	3.00	0.114	0.118
c	0.28	0.44	0.011	0.017	H	2.60	2.85	0.102	0.112
D	4.40	4.60	0.173	0.181	-	-	-	-	-

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