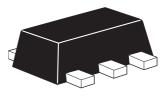


ZXTP25100CZ 100V PNP medium power transistor in SOT89

Summary

 $BV_{CEO} > -100V$ $BV_{ECO} > -7V$ $I_{C(cont)} = 1A$ $V_{CE(sat)} < -225mV @ 1A$ $R_{CE(sat)} = 155m\Omega$ $P_{D} = 2.4W$



Complementary part number ZXTN25100DZ

Description

Advanced process capability and package design have been used to maximize the power handling and performance of this small outline transistor. The compact size and ratings of this device make it ideally suited to applications where space is at a premium.

Features

- High power dissipation SOT89 package
- High peak current
- Low saturation voltage
- 7V reverse blocking

Applications

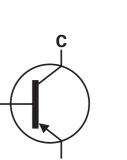
- Motor drive
- High side driver
- Load disconnect switch

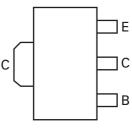
Ordering information

Device	Reel size	Tape width	Quantity	
	(inches)	(mm)	per reel	
ZXTP25100CZTA	7	12	1000	

Device marking

• IL7





Pinout - top view

Absolute maximum ratings

Parameter	Symbol	Limit	Unit
Collector-Base voltage	V _{CBO}	-115	V
Collector-Emitter voltage	V _{CEO}	-100	V
Emitter-Collector voltage (reverse blocking)	V _{ECO}	-7	V
Emitter-Base voltage	V _{EBO}	-7	V
Continuous Collector current ^(c)	Ι _C	-1	А
Base current	Ι _Β	-500	mA
Peak pulse current	I _{СМ}	-3	А
Power dissipation at $T_A = 25^{\circ}C^{(a)}$	PD	1.1	W
Linear derating factor		8.8	mW/°C
Power dissipation at $T_A = 25^{\circ}C^{(b)}$	PD	1.8	W
Linear derating factor		14.4	mW/°C
Power dissipation at $T_A = 25^{\circ}C^{(c)}$	PD	2.4	W
Linear derating factor		19.2	mW/°C
Power dissipation at $T_A = 25^{\circ}C^{(d)}$	PD	4.46	W
Linear derating factor		35.7	mW/°C
Power dissipation at $T_{C} = 25^{\circ}C^{(e)}$	PD	15.7	W
Linear derating factor		126	mW/°C
Operating and storage temperature range	T _j , T _{stg}	-55 to 150	°C

Thermal resistance

Parameter	Symbol	Limit	Unit
Junction to ambient ^(a)	R _{OJA}	117	°C/W
Junction to ambient ^(b)	R _{OJA}	68	°C/W
Junction to ambient ^(c)	R _{OJA}	51	°C/W
Junction to ambient ^(d)	R _{OJA}	28	°C/W
Junction to case ^(e)	$R_{\Theta JC}$	7.95	°C/W

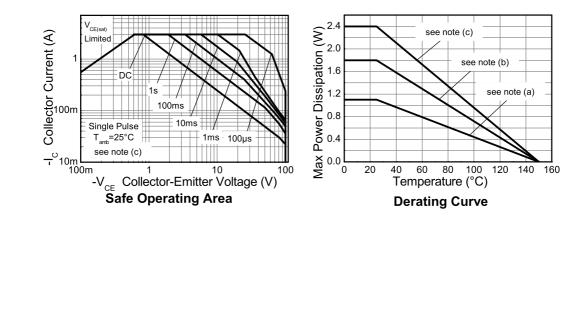
NOTES:

(a) For a device surface mounted on 15mm x 15mm x 0.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

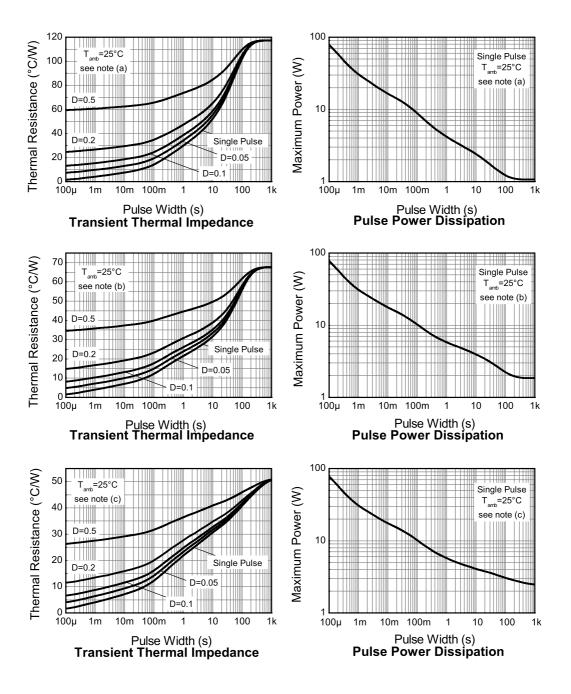
(b) Mounted on 25mm x 25mm x 0.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions. (c) Mounted on 50mm x 50mm x 0.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions. (d) As (c) above measured at t<5 seconds.

(e) Junction to case (collector tab). Typical

Thermal characteristics



Thermal characteristics

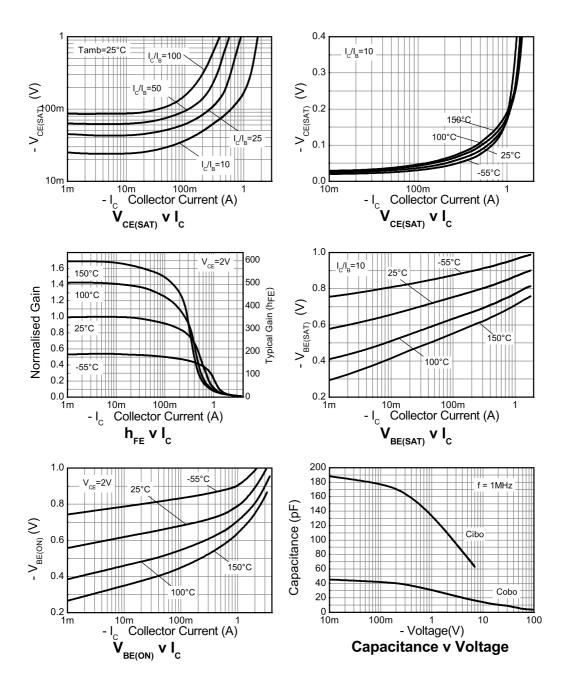


Electrical characteristics (at T _{amb}	= 25°C unless otherwise stated)
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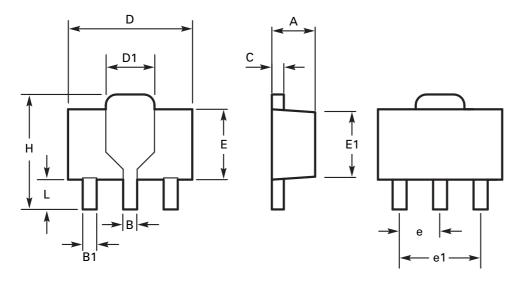
Collector-Base breakdown By voltage	vmbol V _{CBO}	-115	Typ.			
voltage Collector-Emitter BV	000		-180		V	I _C = -100μA
breakdown voltage	V _{CEO}	-100	-140		V	I _C = -10mA ^(*)
-						
(base open)						
	V _{EBO}	-7	-8.4		V	I _E = -100μA
voltage	4	7	0.0			
Emitter-Collector BN breakdown voltage	V _{ECX}	-7	-8.3		V	$I_{\rm E} = -100 \mu A$, $R_{\rm BC} < 1 k \Omega$ or -
(reverse blocking)						0.25V > V _{BC} > 0.25V
)	V _{ECO}	-7	-8.8		V	I _F = -100μA
breakdown voltage (base	ECO		010		•	
open)						
Collector-Base cut-off	во		<-1	-50	nA	V _{CB} =-115V
current				-0.5	μA	V _{CB} =-115V, T _{amb} =100°C
Collector-Emitter cut-off	EX			-100	nA	V_{CE} = -90V, R_{BE} < 1k Ω or -
current						0.25V < V _{BE} < 1V
Emitter-Base cut-off	во		<-1	-50	nA	V _{EB} = -5.6V
current						
Collector-Emitter V _C	CE(sat)		-140	-210	mV	$I_{C} = -100 \text{mA}, I_{B} = -1 \text{ mA}^{(*)}$
saturation voltage			-80	-115	mV	$I_{C} = -500 \text{mA}, I_{B} = -50 \text{mA}^{(*)}$
			-180	-315	mV	$I_{C} = -500 \text{mA}, I_{B} = -20 \text{mA}^{(*)}$
			-155	-225	mV	$I_{\rm C} = -1A$, $I_{\rm B} = -100 {\rm mA}^{(*)}$
Base-Emitter saturation V _E	BE(sat)		-860	-950	mV	I _C = -1A, I _B = -100mA ^(*)
voltage						
Base-Eitter turn-on V _E	BE(on)		-800	-900	mV	$I_{C} = -1A, V_{CE} = -2V^{(*)}$
voltage						
Static forward current h _F	E	200	350	500		$I_{C} = -10 \text{mA}, V_{CE} = -2V^{(*)}$
transfer ratio		180	320			$I_{C} = -100 \text{mA}, V_{CE} = -2V^{(*)}$
		110	190			$I_{C} = -500 \text{mA}, V_{CE} = -2V^{(*)}$
		20	35			$I_{C} = -1A, V_{CE} = -2V^{(*)}$
Transition frequency f _T			180		MHz	I _C = -20mA, V _{CE} = -15V
						f = 100MHz
Input capacitance C _i	ibo		153		pF	V _{EB} = -0.5V, f = 1MHz ^(*)
Output capacitance C _c	obo		14.1	20	pF	V _{CB} = 10V, f = 1MHz ^(*)
Delay time t _d			15.8		ns	
Rise time t _r			41		ns	$V_{cc} = -10V, I_{c} = -500mA$
Storage time t _s			411		ns	I _{B1} = -I _{B2} = -50mA
Fall time t _f			89		ns	

NOTES: (*) Measured under pulsed conditions. Pulse width $\leq 300 \mu s;$ duty cycle $\leq 2\%.$

Typical characteristics



Package outline - SOT89



DIM	Millin	neters	Inc	hes	DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
Α	1.40	1.60	0.550	0.630	E	2.29	2.60	0.090	0.102
В	0.44	0.56	0.017	0.022	E1	2.13	2.29	0.084	0.090
B1	0.36	0.48	0.014	0.019	е	1.50 BSC		0.059 BSC	
С	0.35	0.44	0.014	0.017	e1	3.00 BSC		0.118	BSC
D	4.40	4.60	0.173	0.181	Н	3.94	4.25	0.155	0.167
D1	1.52	1.83	0.064	0.072	L	0.89	1.20	0.035	0.047

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

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