ZXTP2013Z

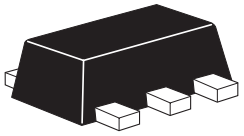
100V PNP LOW SATURATION MEDIUM POWER TRANSISTOR IN SOT89

SUMMARY

BV_{CEO} = -100V : R_{SAT} = 57mΩ; I_C = -3.5A

DESCRIPTION

Packaged in the SOT89 outline this new low saturation 100V 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.



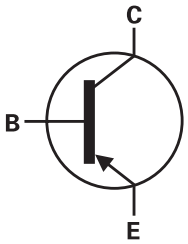
SOT89

FEATURES

- 3.5 amps continuous current
- Up to 10 amps peak current
- Very low saturation voltages

APPLICATIONS

- Motor driving
- Line switching
- High side switches
- Subscriber line interface cards (SLIC)



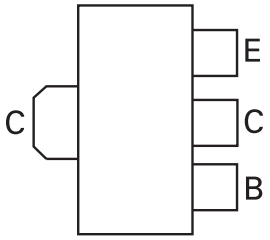
ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXTP2013ZTA	7"	12mm embossed	1,000 units

DEVICE MARKING

953

PINOUT



VIEW

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ABSOLUTE MAXIMUM RATINGS

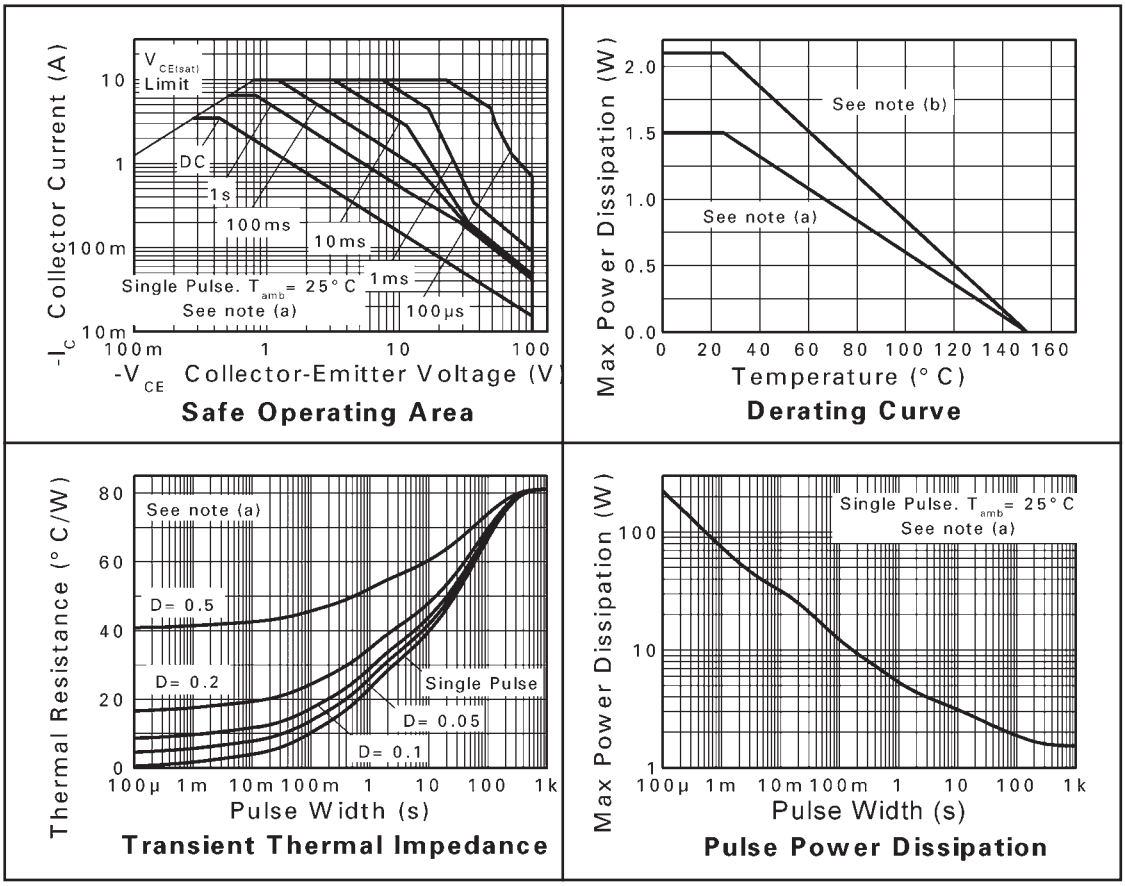
PARAMETER	SYMBOL	LIMIT	UNIT
Collector-base voltage	BV_{CBO}	-140	V
Collector-emitter voltage	BV_{CEO}	-100	V
Emitter-base voltage	BV_{EBO}	-7	V
Continuous collector current[a]	I_C	-3.5	A
Peak pulse current	I_{CM}	-10	A
Power dissipation at T_A=25°C [a] Linear derating factor	P_D	1.5 12	W mW/°C
Power dissipation at T_A=25°C [b] Linear derating factor	P_D	2.1 16.8	W 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]	$R_{\theta JA}$	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.

CHARACTERISTICS

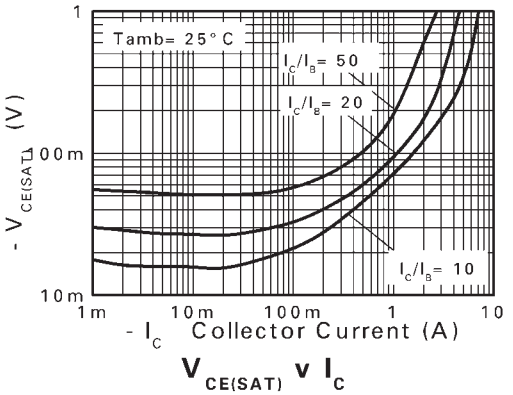


ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated)

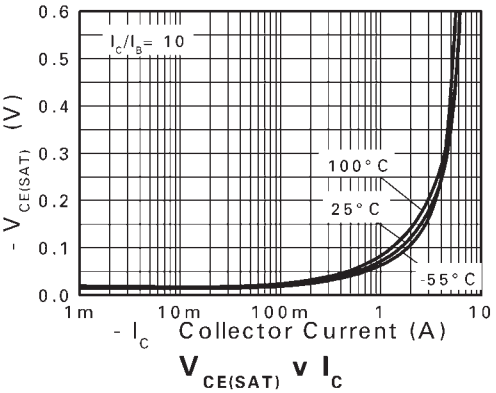
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-base breakdown voltage	BV_{CBO}	-140	-160		V	I_C = -100μA
Collector-emitter breakdown voltage	BV_{CER}	-140	-160		V	I_C = -1μA, RB ≤ 1kΩ
Collector-emitter breakdown voltage	BV_{CEO}	-100	-115		V	I_C = -10mA*
Emitter-base breakdown voltage	BV_{EBO}	-7	-8.1		V	I_E = -100μA
Collector cut-off current	I_{CBO}		<1	-20	nA	V_{CB} = -100V
				-0.5	μA	V_{CB} = -100V, T_{amb}=100°C
Collector cut-off current	I_{CER}		<1	-20	nA	V_{CB} = -100V
	R≤1kΩ			-0.5	μA	V_{CB} = -100V, T_{amb}=100°C
Emitter cut-off current	I_{EBO}		<1	-10	nA	V_{EB} = -6V
Collector-emitter saturation voltage	$V_{CE(SAT)}$		-20	-30	mV	I_C = -0.1A, I_B = -10mA*
			-65	-85	mV	I_C = -1A, I_B = -100mA*
			-110	-135	mV	I_C = -2A, I_B = -200mA*
			-230	-300	mV	I_C = -4A, I_B = -400mA*
Base-emitter saturation voltage	$V_{BE(SAT)}$		-970	-1060	mV	I_C = -4A, I_B = -400mA*
Base-emitter turn on voltage	$V_{BE(ON)}$		-910	-1030	mV	I_C = -4A, V_{CE} = -1V*
Static forward current transfer ratio	h_{FE}	100	250			I_C = -10mA, V_{CE} = -1V*
		100	200	300		I_C = -1A, V_{CE} = -1V*
		25	50			I_C = -3A, V_{CE} = -1V*
		15	30			I_C = -4A, V_{CE} = -1V*
			5			I_C = -10A, V_{CE} = -1V*
Transition frequency	f_T		125		MHz	I_C = 100mA, V_{CE} = 10V
						f=50MHz
Output capacitance	C_{OBO}		42		pF	V_{CB} = -10V, f= 1MHz*
Switching times	t_{ON}		42		ns	I_C = 1A, V_{CC} = 10V,
	t_{OFF}		540			I_{B1} = I_{B2} = 100mA

* Measured under pulsed conditions. Pulse width ≤ 300μs; duty cycle ≤ 2%.

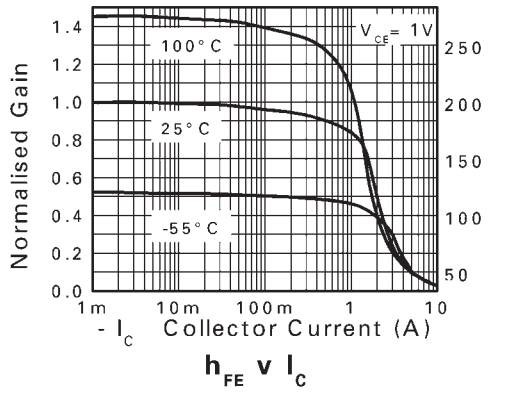
TYPICAL CHARACTERISTICS



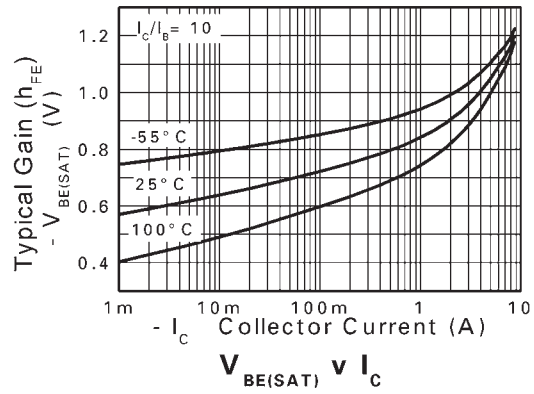
$V_{CE(SAT)}$ v I_C



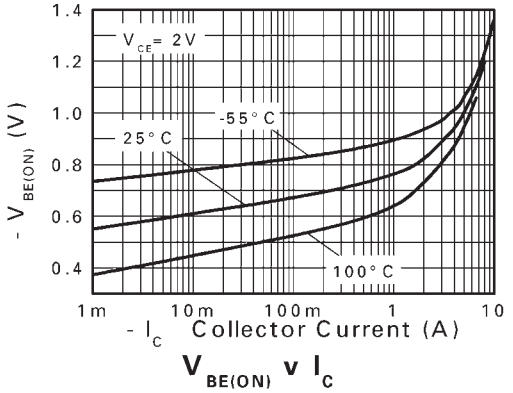
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C



$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C

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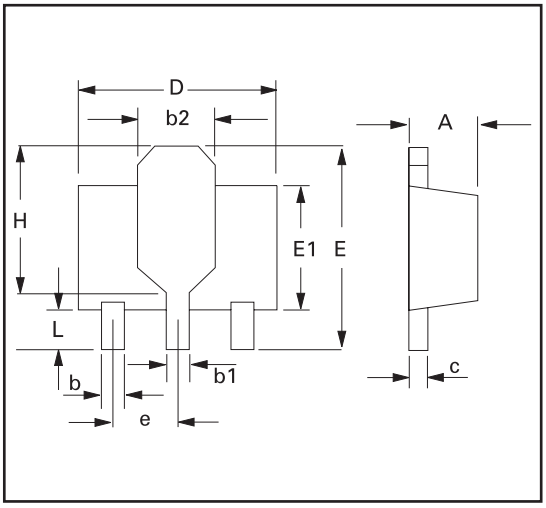
PACKAGE OUTLINE



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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