ZXTP2014Z

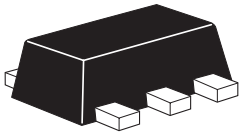
140V PNP LOW SATURATION MEDIUM POWER TRANSISTOR IN SOT89

SUMMARY

BV_{CEO} = -140V : R_{SAT} = 85mΩ; I_C = -3A

DESCRIPTION

Packaged in the SOT89 outline this new low saturation 140V 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.



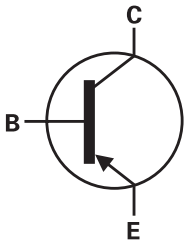
SOT89

FEATURES

- 3 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)



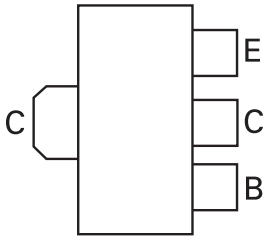
ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXTP2014ZTA	7"	12mm embossed	1,000 units

DEVICE MARKING

955

PINOUT



TOP VIEW

ZETEX SEMICONDUCTORS

ABSOLUTE MAXIMUM RATINGS

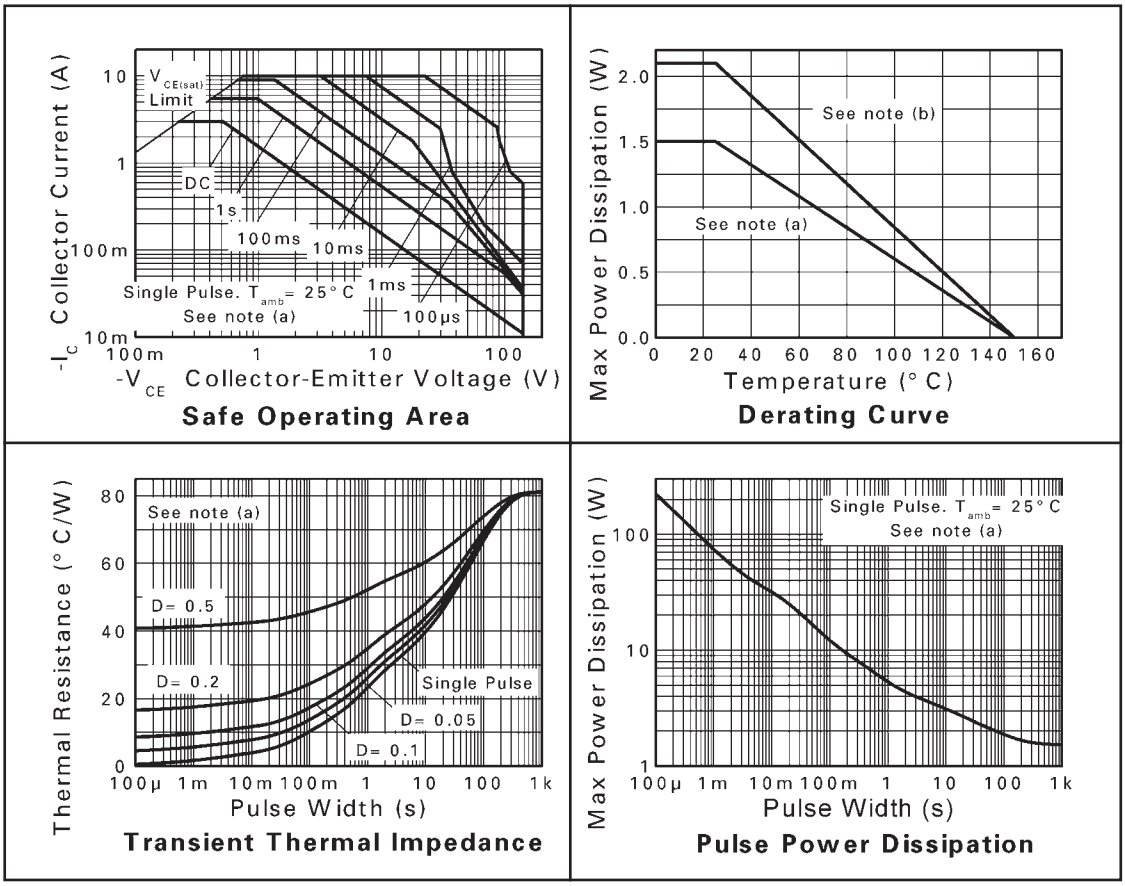
PARAMETER	SYMBOL	LIMIT	UNIT
Collector-base voltage	BV_{CBO}	-180	V
Collector-emitter voltage	BV_{CEO}	-140	V
Emitter-base voltage	BV_{EBO}	-7	V
Continuous collector current[a]	I_C	-3	A
Peak pulse current	I_{CM}	-10	A
Power dissipation at T_A=25°C [a] Linear derating factor	P_D	1.5 12	W mW/°C
Power dissipation 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



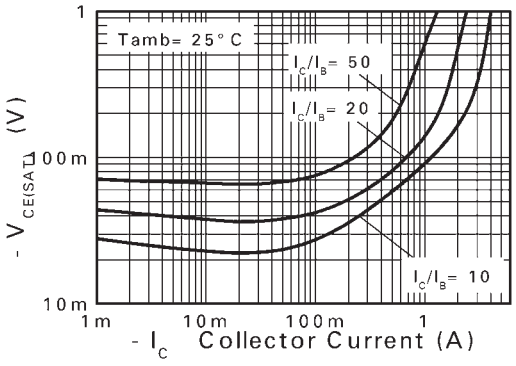
ZXTP2014Z

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

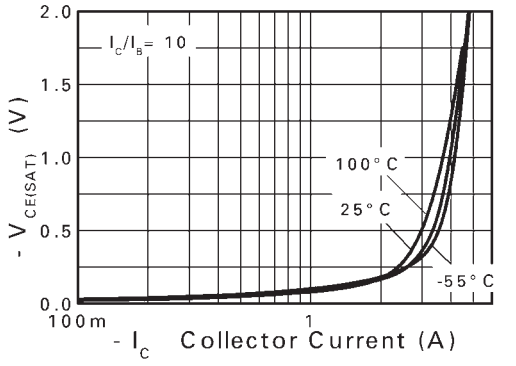
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-base breakdown voltage	BV_{CBO}	-180	-200		V	I_C = -100μA
Collector-emitter breakdown voltage	BV_{CER}	-180	-200		V	I_C = -1μA, RB ≤ 1kΩ
Collector-emitter breakdown voltage	BV_{CEO}	-140	-160		V	I_C = -10mA*
Emitter-base breakdown voltage	BV_{EBO}	-7.0	-8.0		V	I_E = -100μA
Collector cut-off current	I_{CBO}		<1	-20	nA	V_{CB} = -150V
				-0.5	μA	V_{CB} = -150V, T_{amb}=100°C
Collector cut-off current	I_{CER}		<1	-20	nA	V_{CB} = -150V
	R≤1kΩ			-0.5	μA	V_{CB} = -150V, T_{amb}=100°C
Emitter cut-off current	I_{EBO}		<1	-10	nA	V_{EB} = -6V
Collector-emitter saturation voltage	$V_{CE(SAT)}$		-37	-60	mV	I_C = -0.1A, I_B = -5mA*
			-50	-75	mV	I_C = -0.5A, I_B = -50mA*
			-80	-115	mV	I_C = -1A, I_B = -100mA*
			-255	-330	mV	I_C = -3A, I_B = -300mA*
Base-emitter saturation voltage	$V_{BE(SAT)}$		-910	-1010	mV	I_C = -3A, I_B = -300mA*
Base-emitter turn on voltage	$V_{BE(ON)}$		-800	-900	mV	I_C = -3A, V_{CE} = -5V*
Static forward current transfer ratio	h_{FE}	100	225			I_C = -10mA, V_{CE} = -5V*
		100	200	300		I_C = -1A, V_{CE} = -5V*
		45	100			I_C = -3A, V_{CE} = -5V*
			5			I_C = -10A, V_{CE} = -5V*
Transition frequency	f_T		120		MHz	I_C = -100mA, V_{CE} = -10V
						f=50MHz
Output capacitance	C_{OBO}		33		pF	V_{CB} = -10V, f= 1MHz*
Switching times	t_{ON}		42		ns	I_C = -1A, V_{CC} = -50V,
	t_{OFF}		636			I_{B1} = -I_{B2} = -100mA

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

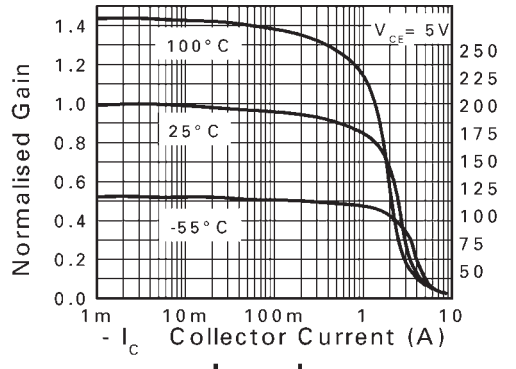
TYPICAL CHARACTERISTICS



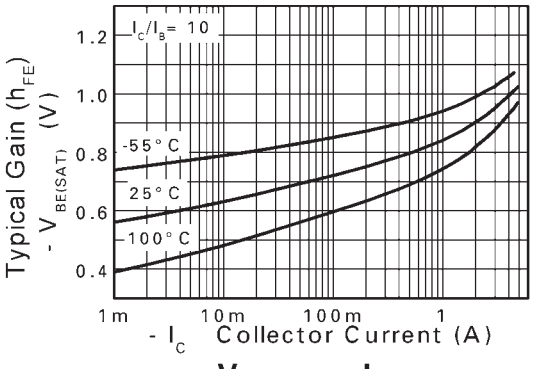
$V_{CE(SAT)}$ v I_C



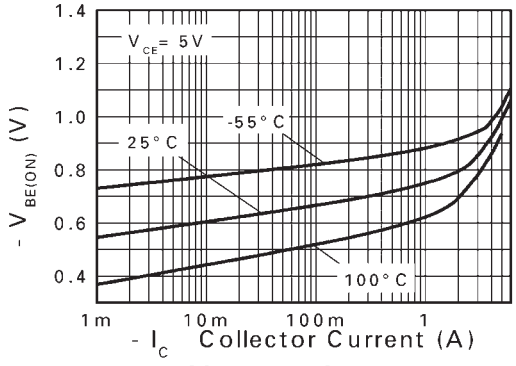
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C



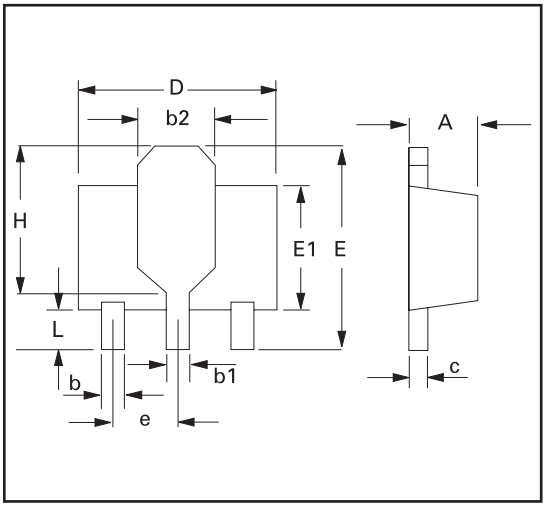
$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C

ZXTP2014Z

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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