

ZX5T955Z.

140V PNP Low saturation medium power transistor in SOT89

Summary

 $BV_{CEO} = -140V : R_{SAT} = 85m\Omega; I_C = -3A$

Description

Packaged in the SOT89 outline this new 5th generation 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.

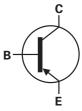


Features

- · 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)

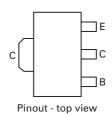


Ordering Information

Device	Reel	Tape	Quantity	
	Size	Width	Per Reel	
ZX5T955TA	7″	12mm	1000	

Device Marking

955



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	А
Peak pulse current	I _{CM}	-10	Α
Power dissipation at T _{amb} =25°C ^(a) Linear derating factor	P _D	1.5 12	W mW/°C
Power dissipation at T _{amb} =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

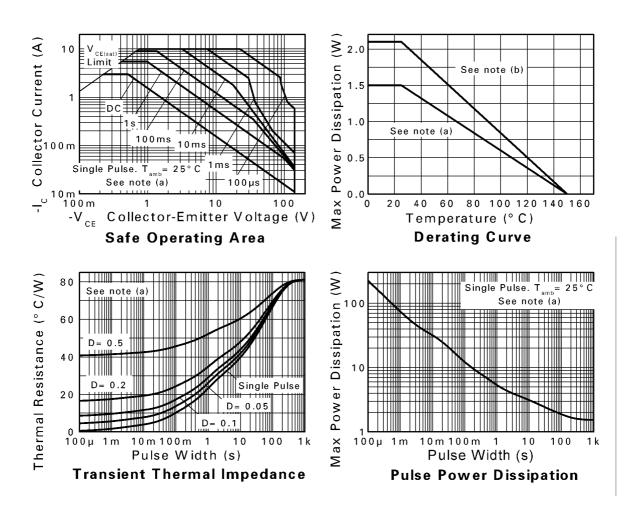
Thermal resistance

Parameter	Symbol	Limit	Unit
Junction to ambient ^(a)	$R_{\Theta JA}$	83	°C/W
Junction to ambient ^(b)	$R_{\Theta JA}$	60	°C/W

⁽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



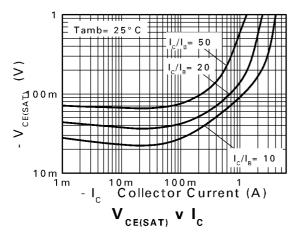
Electrical Characteristics (at T_{amb} =25°C unless otherwise stated)

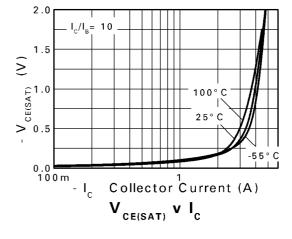
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-Base breakdown voltage	BV _{CBO}	-180	-200		V	$I_C = -100 \mu A$
Collector-Emitter breakdown voltage	BV _{CER}	-180	-200		V	I_C = -100μA, RB<1k Ω
Collector-Emitter breakdown voltage	BV _{CEO}	-140	-160		V	I _C = -10mA ^(*)
Emitter-Base breakdown voltage	BV _{EBO}	-7.0	-8.0		V	$I_E = -100 \mu A$
Collector cut-off current	I _{CBO}		<1	-20 -0.5	nA μA	$V_{CB} = -150V$ $V_{CB} = -150V$, Tamb = 100°C
Collector cut-off current	I _{CER} R<1kΩ		<1	-20 -0.5	nA μA	$V_{CB} = -150V$ $V_{CB} = -150V$, Tamb = 100°C
Emitter cut-off current	I _{EBO}		<1	-10	nA	V _{EB} = -6V
Collector-Emitter saturation	V _{CE(sat)}		-37	-60	mV	$I_C = -0.1A$, $I_B = -5mA^{(*)}$
voltage			-50	-75	mV	$I_C = -0.5A, I_B = -50mA^{(*)}$
			-80	-115	mV	$I_C = -1A$, $I_B = -100 \text{mA}^{(*)}$
			-255	-330	mV	$I_C = -3A$, $I_B = -300 \text{mA}^{(*)}$
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	h _{FE}	100	225			$I_C = -10 \text{mA}, V_{CE} = -5 V^{(*)}$
transfer ratio		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		ns	$I_{B1} = -I_{B2} = -100 \text{mA}$

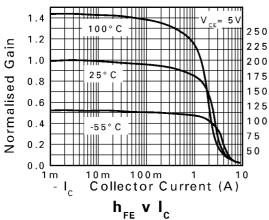
NOTES:

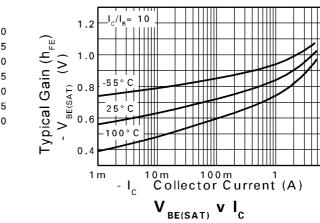
^(*) Measured under pulsed conditions. Pulse width ${\leq}300\mu\text{s};$ duty cycle ${\leq}2\%.$

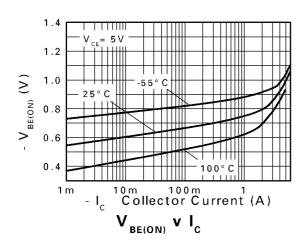
Typical characteristics



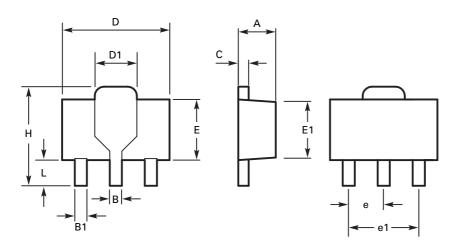








Package Outline



DIM	Millimete	ers	Inch	nes	DIM Millimeters		Inches		
	Min	Max	Min	Max		Min	Max	Min	Max
Α	1.40	1.60	0.550	0.630	е	1.40	1.50	0.055	0.059
b	0.38	0.48	0.015	0.019	Е	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
С	0.28	0.44	0.011	0.017	Н	2.60	2.85	0.102	0.112
D	4.40	4.60	0.173	0.181	-	-	-	-	-



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