

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.

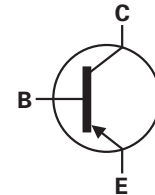


Features

- 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)

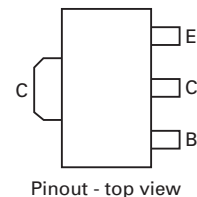


Ordering Information

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

Device Marking

955



ZX5T955Z.

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 $T_{amb}=25^{\circ}C$ ^(a) Linear derating factor	P_D	1.5 12	W mW/°C
Power dissipation at $T_{amb}=25^{\circ}C$ ^(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

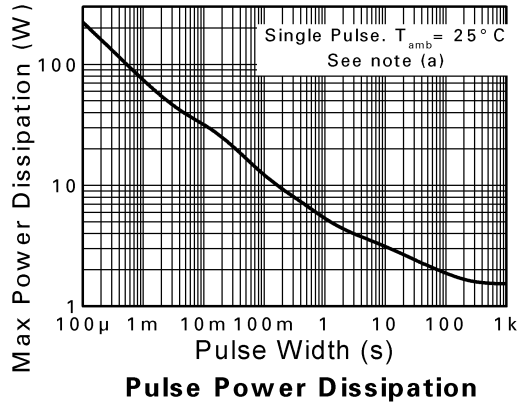
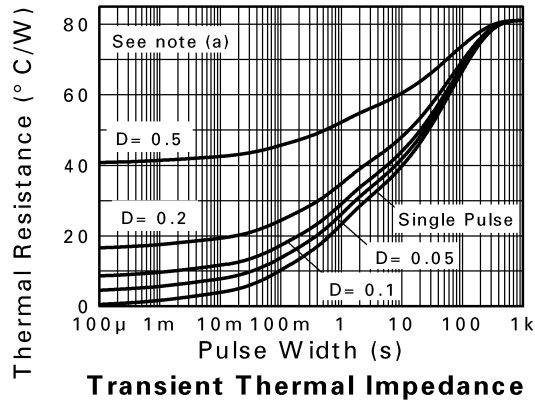
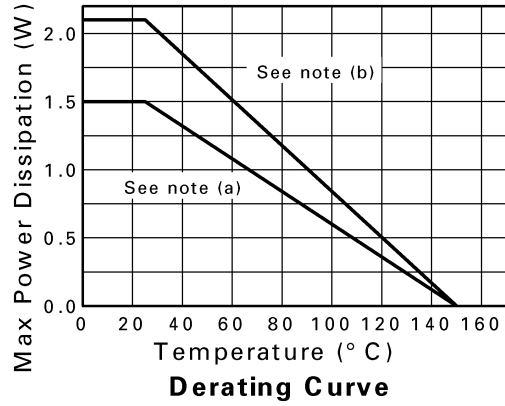
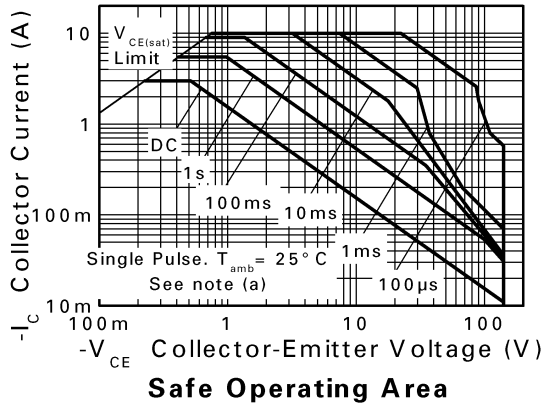
Thermal resistance

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



ZX5T955Z.

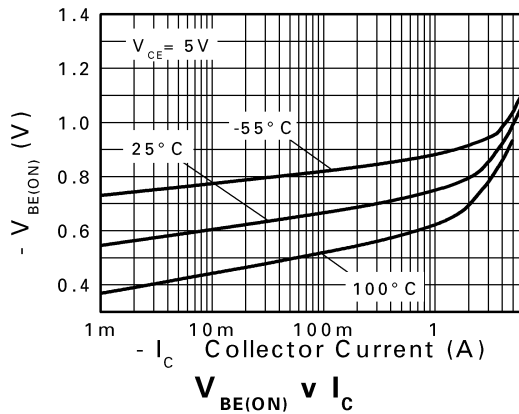
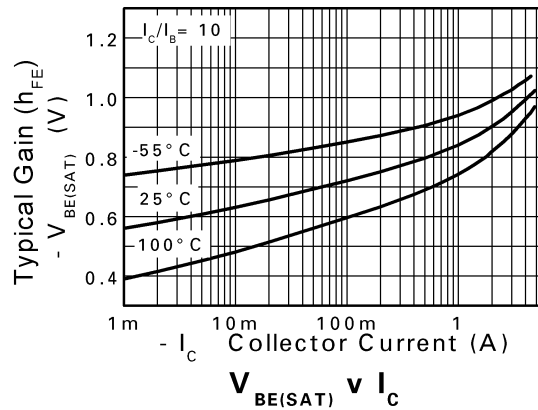
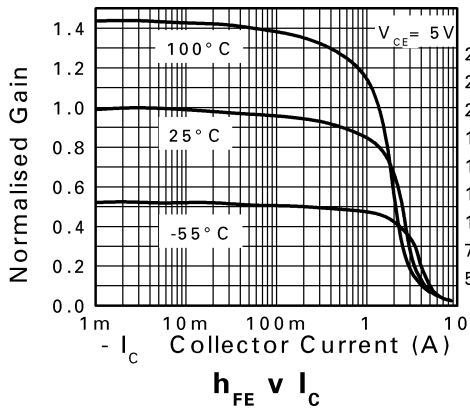
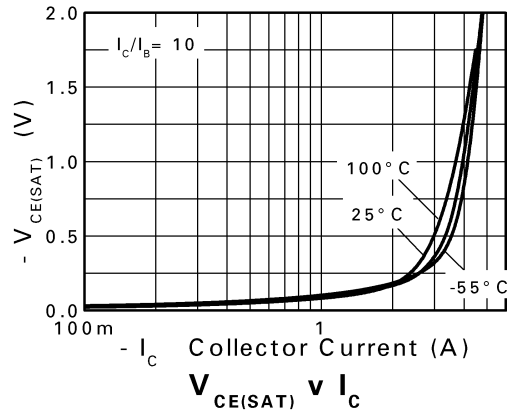
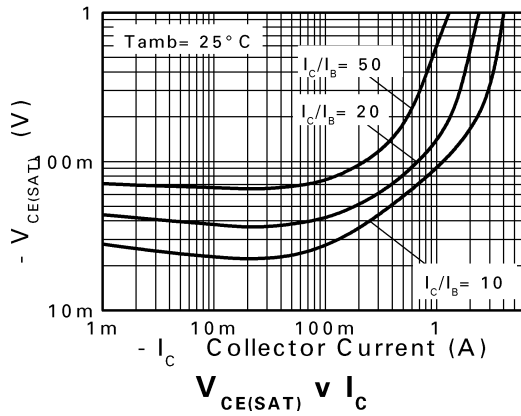
Electrical Characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-Base breakdown voltage	BV_{CBO}	-180	-200		V	$I_C = -100\mu\text{A}$
Collector-Emitter breakdown voltage	BV_{CER}	-180	-200		V	$I_C = -100\mu\text{A}$, $R_B < 1\text{k}\Omega$
Collector-Emitter breakdown voltage	BV_{CEO}	-140	-160		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	$V_{CB} = -150\text{V}$ $V_{CB} = -150\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Collector cut-off current	I_{CER} $R < 1\text{k}\Omega$		<1	-20 -0.5	nA μA	$V_{CB} = -150\text{V}$ $V_{CB} = -150\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Emitter cut-off current	I_{EBO}		<1	-10	nA	$V_{EB} = -6\text{V}$
Collector-Emitter saturation voltage	$V_{CE(sat)}$		-37 -50 -80 -255	-60 -75 -115 -330	mV mV mV mV	$I_C = -0.1\text{A}$, $I_B = -5\text{mA}$ (*) $I_C = -0.5\text{A}$, $I_B = -50\text{mA}$ (*) $I_C = -1\text{A}$, $I_B = -100\text{mA}$ (*) $I_C = -3\text{A}$, $I_B = -300\text{mA}$ (*)
Base-emitter saturation voltage	$V_{BE(sat)}$		-910	-1010	mV	$I_C = -3\text{A}$, $I_B = -300\text{mA}$ (*)
Base-emitter turn-on voltage	$V_{BE(on)}$		-800	-900	mV	$I_C = -3\text{A}$, $V_{CE} = -5\text{V}$ (*)
Static forward current transfer ratio	h_{FE}	100 100 45	225 200 100 5	300		$I_C = -10\text{mA}$, $V_{CE} = -5\text{V}$ (*) $I_C = -1\text{A}$, $V_{CE} = -5\text{V}$ (*) $I_C = -3\text{A}$, $V_{CE} = -5\text{V}$ (*) $I_C = -10\text{A}$, $V_{CE} = -5\text{V}$ (*)
Transition frequency	f_T		120		MHz	$I_C = -100\text{mA}$, $V_{CE} = -10\text{V}$ $f = 50\text{MHz}$
Output capacitance	C_{OBO}		33		pF	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$ (*)
Switching times	t_{on} t_{off}		42 636		ns ns	$I_C = -1\text{A}$, $V_{CC} = -50\text{V}$, $I_{B1} = -I_{B2} = -100\text{mA}$

NOTES:

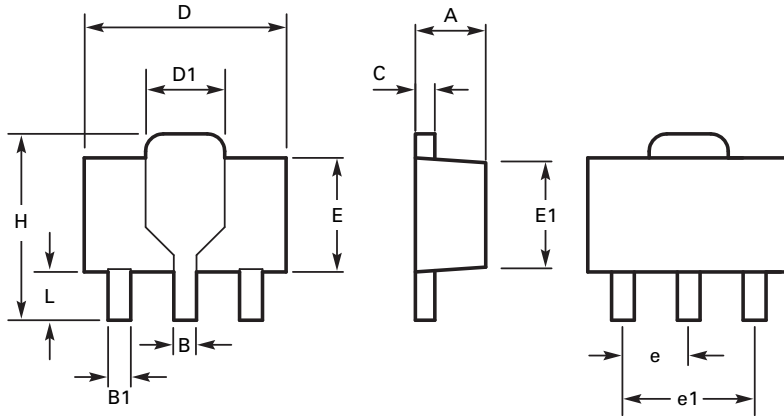
(*) Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$.

Typical characteristics



ZX5T955Z.

Package Outline



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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