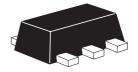
25V NPN LOW SATURATION MEDIUM POWER TRANSISTOR IN SOT89

SUMMARY

 $BV_{CEO} = 25V : R_{SAT} = 25m\Omega; I_C = 5.5A$

DESCRIPTION

Packaged in the SOT89 outline this new low saturation 25V NPN transistor offers extremely low on state losses making it ideal for use in DC-DC circuits and various driving and power management functions.



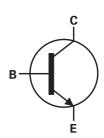
SOT89

FEATURES

- Extremely low equivalent on-resistance; R_{SAT} = 25m Ω at 6.5A
- 5.5 amps continuous current
- Up to 20 amps peak current
- Very low saturation voltages
- Excellent h_{FE} characteristics up to 20 amps

APPLICATIONS

- Emergency lighting circuits
- Motor driving (including DC fans)
- Solenoid, relay and actuator drivers
- DC modules
- · Backlight Inverters

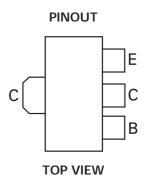


ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXTN2005ZTA	7"	12mm embossed	1,000 units

DEVICE MARKING

869





ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-base voltage	BV _{CBO}	60	V
Collector-emitter voltage	BV _{CEO}	25	V
Emitter-base voltage	BV _{EBO}	7	V
Continuous collector current ^(a)	I _C	5.5	А
Peak pulse current	I _{CM}	20	А
Power dissipation at T _A =25°C ^(a)	P _D	1.5	W
Linear derating factor		12	mW/°C
Power dissipation at TA=25°C (b)	P_{D}	2.1	W
Linear derating factor		16.8	mW/°C
Operating and storage temperature range	T _j , T _{stg}	-55 to +150	°C

THERMAL RESISTANCE

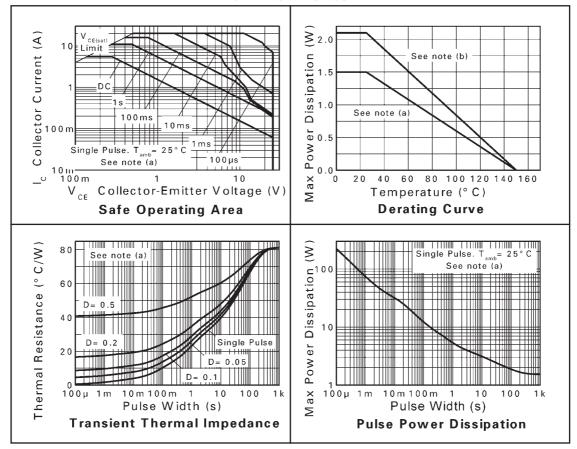
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to ambient ^(a)	$R_{\theta JA}$	83	°C/W
Junction to ambient ^(b)	$R_{\theta JA}$	60	°C/W

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





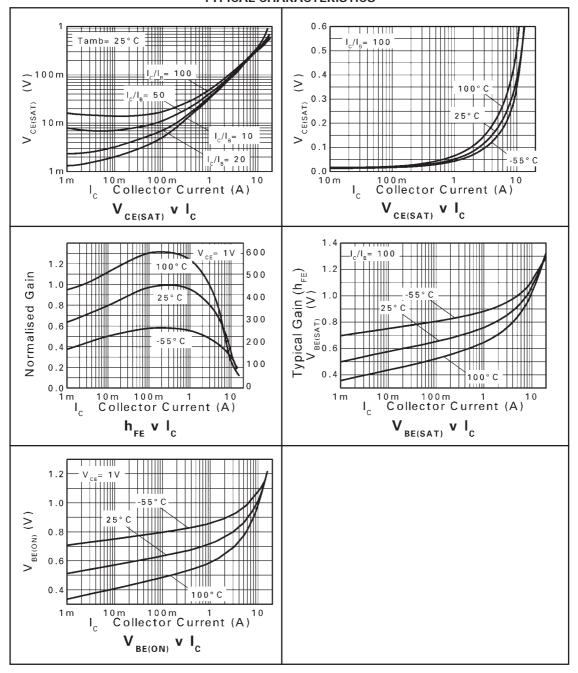
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-base breakdown voltage	BV _{CBO}	60	120		V	I _C = 100μA
Collector-emitter breakdown voltage	BV _{CER}	60	120		V	$I_C = 1\mu A$, $RB \le 1k\Omega$
Collector-emitter breakdown voltage	BV _{CEO}	25	35		V	I _C = 10mA*
Emitter base breakdown voltage	BV _{EBO}	7.0	8.1		V	I _E = 100μA
Collector cut-off current	I _{CBO}			20	nA	V _{CB} = 50V
				0.5	μΑ	$V_{CB} = 50V$, $T_{amb} = 100$ °C
Collector cut-off current	I _{CER}			20	nA	V _{CB} = 50V
	R≤1kΩ			0.5	μΑ	$V_{CB} = 50V$, $T_{amb} = 100$ °C
Emitter cut-off current	I _{EBO}			10	nA	V _{EB} = 6V
Collector-emitter saturation voltage	V _{CE(SAT)}		25	35	mV	I _C = 500mA, I _B = 10mA*
			30	45	mV	I _C = 1A, I _B = 100mA*
			45	70	mV	$I_C = 1A, I_B = 10mA*$
			105	130	mV	$I_C = 2A, I_B = 10mA*$
			160	200	mV	I _C = 6.5A, I _B = 150mA*
Base-emitter saturation voltage	V _{BE(SAT)}		950	1050	mV	$I_C = 6.5A, I_B = 150mA^*$
Base-emitter turn on voltage	V _{BE(ON)}		860	960	mV	I _C = 6.5A, V _{CE} = 1V*
Static forward current transfer ratio	h _{FE}	300	400			I _C = 10mA, V _{CE} = 1V*
		300	450			I _C = 1A, V _{CE} = 1V*
		200	275			I _C = 7A, V _{CE} = 1V*
		40	55			I _C = 20A, V _{CE} = 1V*
Transition frequency	f _T		150			I _C = 100mA, V _{CE} = 10V
						f=50MHz
Output capacitance	C _{OBO}		48		pF	V _{CB} = 10V, f= 1MHz*
Switching times	t _{ON}		33		ns	I _C = 1A, V _{CC} = 10V,
	t _{OFF}		464			$I_{B1} = -I_{B2} = 100 \text{mA}$

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



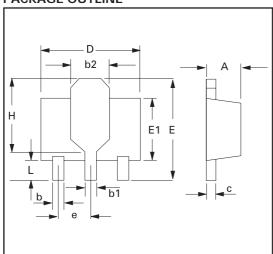
TYPICAL CHARACTERISTICS



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PACKAGE OUTLINE



PACKAGE DIMENSIONS

DIM	Millin	neters	Inc	hes	DIM	Millimeters		Inches	
DIIVI	Min	Max	Min	Max	DIIVI	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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