

Absolute maximum ratings

Parameter	Symbol	Limit	Unit
Collector-base voltage	V_{CBO}	140	V
Collector-emitter voltage	$V_{(BR)CEV}$	140	V
Collector-emitter voltage	V_{CEO}	60	V
Emitter-base voltage	V_{EBO}	7	V
Peak pulse current	I_{CM}	12	A
Continuous collector current ^(a)	I_C	5	A
Base current	I_B	1	A
Power dissipation @ $T_A=25^{\circ}C$ ^(a) Linear derating factor	P_D	1.0 8.0	W mW/ $^{\circ}C$
Power dissipation @ $T_A=25^{\circ}C$ ^(b) Linear derating factor	P_D	1.2 9.6	W mW/ $^{\circ}C$
Power dissipation @ $T_A=25^{\circ}C$ ^(c) Linear derating factor	P_D	1.56 12.5	W mW/ $^{\circ}C$
Operating and storage temperature	$T_j:T_{stg}$	-55 to +150	$^{\circ}C$

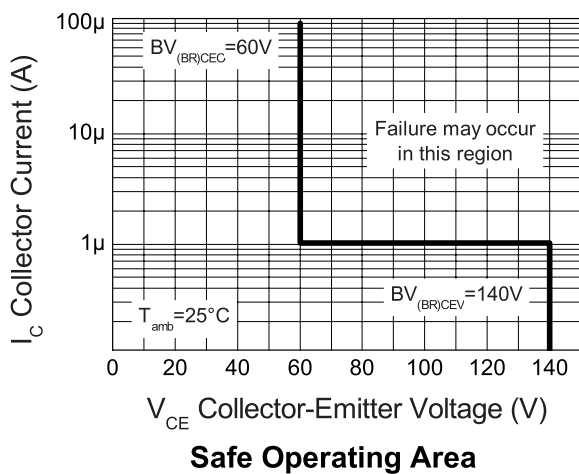
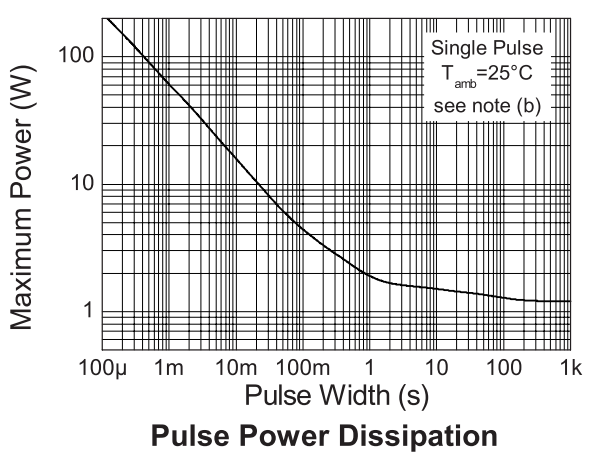
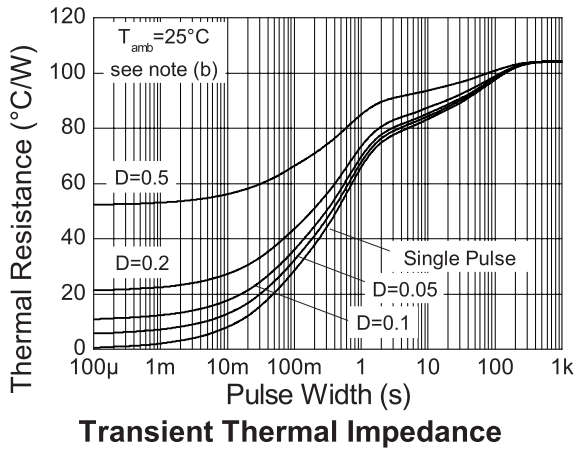
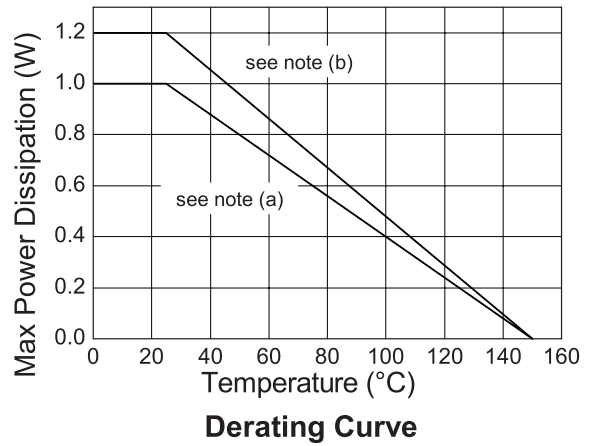
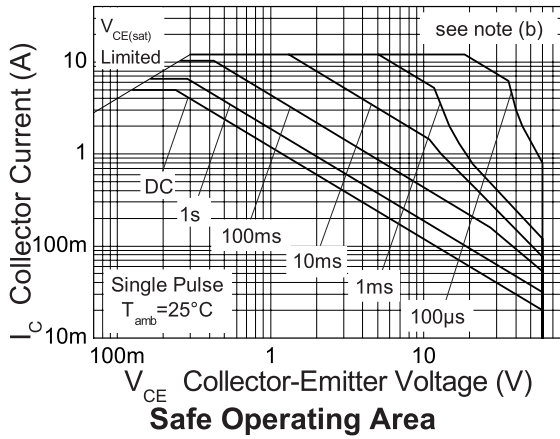
Thermal resistance

Parameter	Symbol	Value	Unit
Junction to ambient ^(a)	$R_{\theta JA}$	125	$^{\circ}C/W$
Junction to ambient ^(b)	$R_{\theta JA}$	104	$^{\circ}C/W$
Junction to ambient ^(c)	$R_{\theta JA}$	80	$^{\circ}C/W$

NOTES:

- (a) Mounted on 18mm x 18mm X 1.6mm FR4 PCB with a very high coverage of 2 oz weight copper in still air conditions.
(b) Mounted on 30mm x 30mm X 1.6mm FR4 PCB with a very high coverage of 2 oz weight copper in still air conditions.
(c) as (b) above measured at $t < 5$ secs.

Characteristics



ZXTN2018F

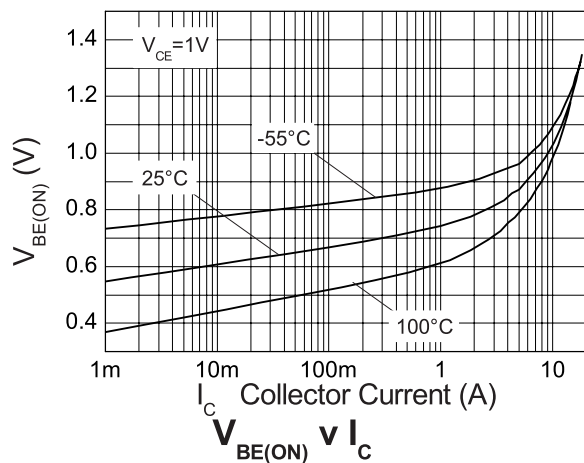
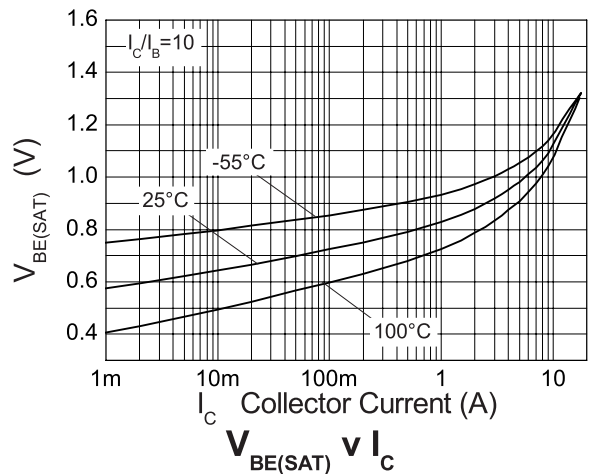
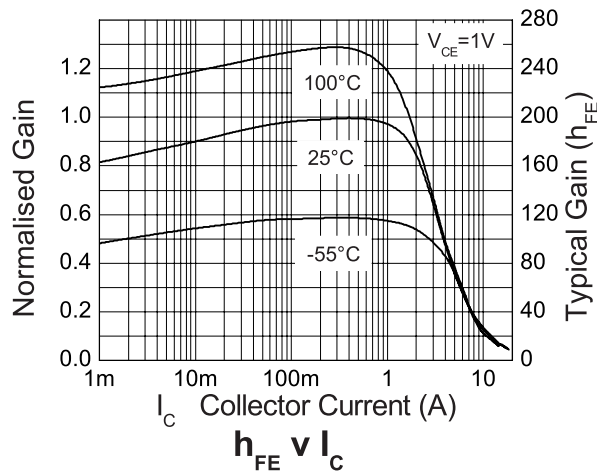
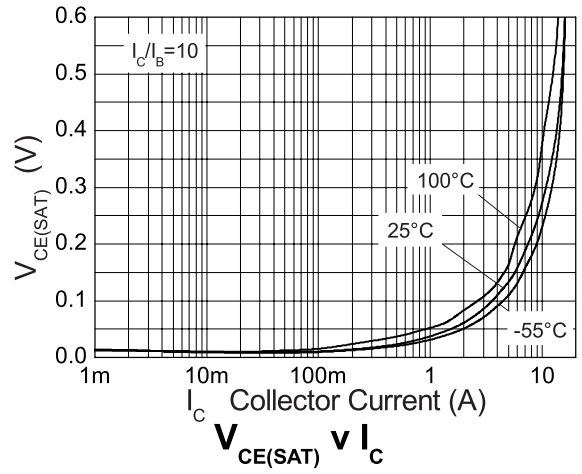
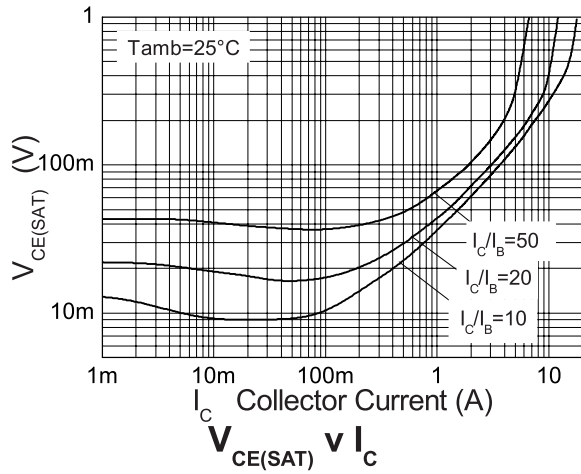
Electrical characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	140	180		V	$I_C=100\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEV}$	140	180		V	$I_C=1\mu\text{A}$, $-1\text{V} < V_{BE} < +0.3\text{V}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	60	80		V	$I_C=10\text{mA}$ ^(a)
Emitter-base breakdown voltage	$V_{(BR)EBO}$	7	8		V	$I_E=100\mu\text{A}$
Collector-emitter cut-off current	I_{CEV}		<1	20	nA	$V_{CE}=110\text{V}$, $V_{BE} = -1\text{V}$
Collector-base cut-off current	I_{CBO}		<1	20	nA	$V_{CB}=110\text{V}$
Emitter-base cut-off current	I_{EBO}		<1	10	nA	$V_{EB}=6\text{V}$
Static forward current transfer ratio	H_{FE}	100 100 40 15	220 200 65 25	300		$I_C=10\text{mA}$, $V_{CE}=1\text{V}^{(a)}$ $I_C=2\text{A}$, $V_{CE}=1\text{V}^{(a)}$ $I_C=5\text{A}$, $V_{CE}=1\text{V}^{(a)}$ $I_C=10\text{A}$, $V_{CE}=1\text{V}^{(a)}$
Collector-emitter saturation voltage	$V_{CE(sat)}$		15 35 40 85 145 170	30 45 55 110 170 210	mV mV mV mV mV mV	$I_C=0.1\text{A}$, $I_B=5\text{mA}^{(a)}$ $I_C=1\text{A}$, $I_B=100\text{mA}^{(a)}$ $I_C=1\text{A}$, $I_B=50\text{mA}^{(a)}$ $I_C=2\text{A}$, $I_B=50\text{mA}^{(a)}$ $I_C=5\text{A}$, $I_B=250\text{mA}^{(a)}$ $I_C=6\text{A}$, $I_B=300\text{mA}^{(a)}$
Base-emitter saturation voltage	$V_{BE(sat)}$		0.92	1.00	V	$I_C=5\text{A}$, $I_B=250\text{mA}^{(a)}$
Base-emitter turn-on voltage	$V_{BE(on)}$		0.85	0.95	V	$I_C=5\text{A}$, $V_{CE}=1\text{V}^{(a)}$
Transition frequency	f_T		130		MHz	$I_C=100\text{mA}$, $V_{CE}=10\text{V}$, $f=50\text{MHz}$
Output capacitance	C_{obo}		28		pF	$V_{CB}=10\text{V}$, $f=1\text{MHz}$
Turn-on time	$t_{(on)}$		33		ns	$V_{CC}=10\text{V}$, $I_C=1\text{A}$,
Turn-off time	$t_{(off)}$		668		ns	$I_{B1}=I_{B2}=100\text{mA}$

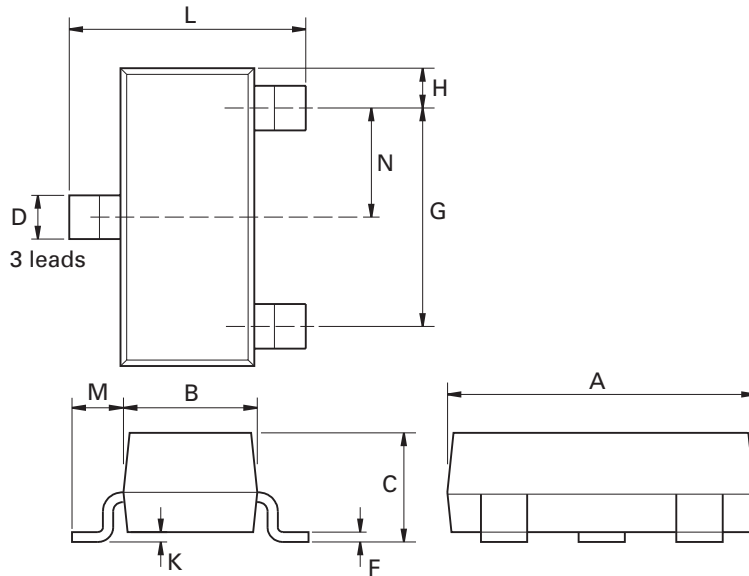
NOTES:

(a) Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$.

Typical characteristics



Packaging details - SOT23



Dim.	Millimeters		Inches		Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Max.	Max.
A	2.67	3.05	0.105	0.120	H	0.33	0.51	0.013	0.020
B	1.20	1.40	0.047	0.055	K	0.01	0.10	0.0004	0.004
C	-	1.10	-	0.043	L	2.10	2.50	0.083	0.0985
D	0.37	0.53	0.015	0.021	M	0.45	0.64	0.018	0.025
F	0.085	0.15	0.0034	0.0059	N	0.95 NOM		0.0375 NOM	
G	1.90 NOM		0.075 NOM		-	-	-	-	-

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

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