

ZXTP25040DFL

40V, SOT23, PNP low power transistor

Summary

$BV_{CEO} > -40V$

$BV_{ECO} > -3V$

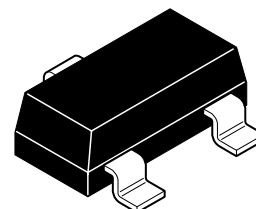
$I_{C(cont)} = -1.5A$

$V_{CE(sat)} < -115mV @ 1A$

$R_{CE(sat)} = 82m\Omega$

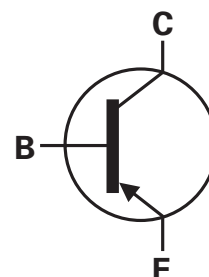
$P_D = 350mW$

Complementary part number ZXTN25040DFL



Description

Advanced process capability has been used to achieve high current gain hold up making this device ideal for applications requiring high pulse currents.



Features

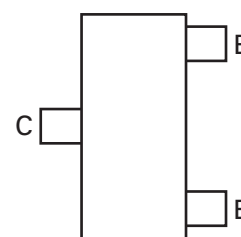
- High peak current
- Low saturation voltage
- 40V forward blocking voltage

Applications

- MOSFET and IGBT gate driving
- Low power DC-DC conversion

Ordering information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP25040DFLTA	7	8	3,000



Pinout - top view

Device marking

1A2

ZXTP25040DFL

Absolute maximum ratings

Parameter	Symbol	Limit	Unit
Collector-base voltage	V_{CBO}	-45	V
Collector-emitter voltage (forward blocking)	V_{CEO}	-40	V
Emitter-collector voltage (reverse blocking)	V_{ECO}	-3	V
Emitter-base voltage	V_{EBO}	-7	V
Continuous collector current ^(a)	I_C	-1.5	A
Base current	I_B	-0.5	A
Peak pulse current	I_{CM}	-5	A
Power dissipation at $T_{amb}=25^{\circ}\text{C}^{(a)}$	P_D	350	mW
Linear derating factor		2.8	mW/ $^{\circ}\text{C}$
Operating and storage temperature range	T_j, T_{stg}	-55 to 150	$^{\circ}\text{C}$

Thermal resistance

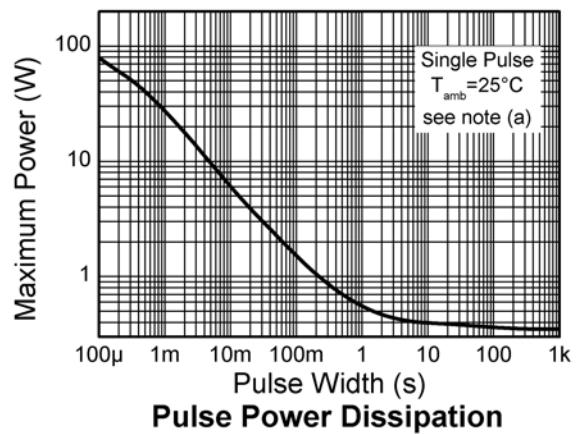
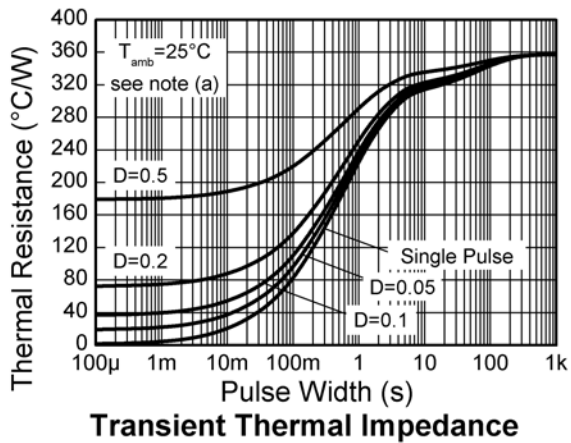
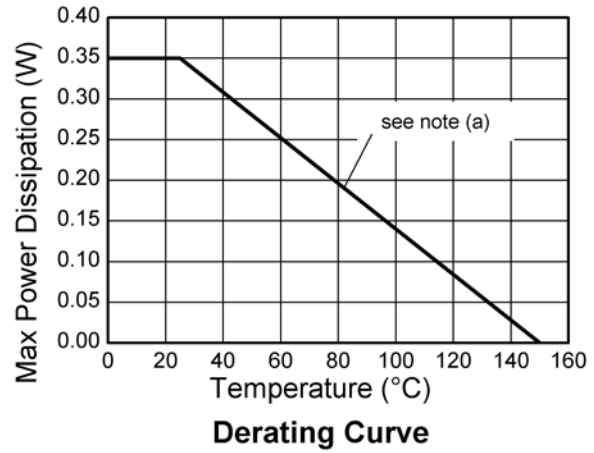
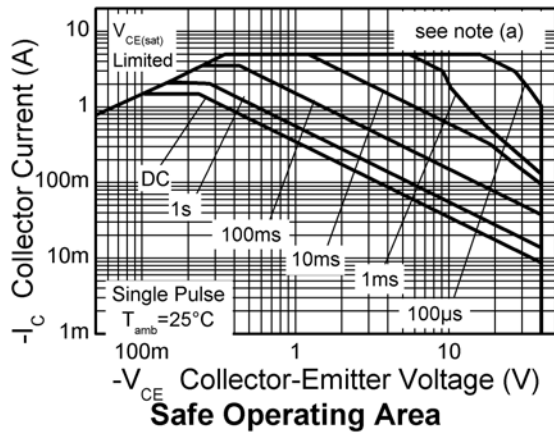
Parameter	Symbol	Limit	Unit
Junction to ambient ^(a)	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$

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.

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Characteristics



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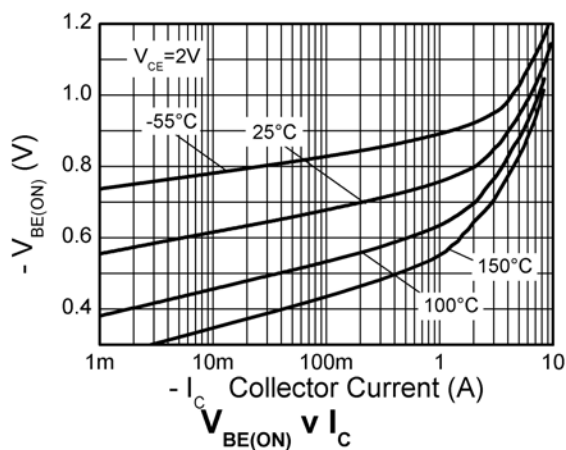
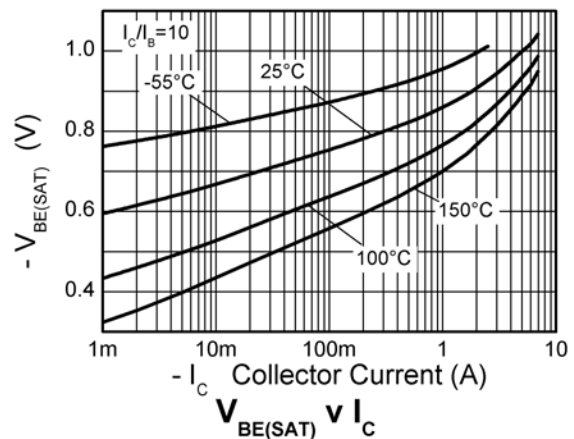
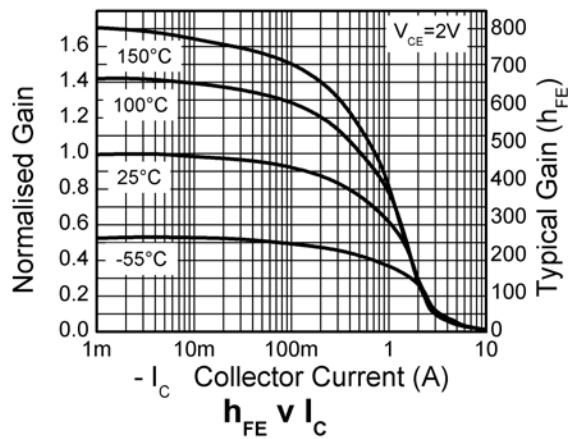
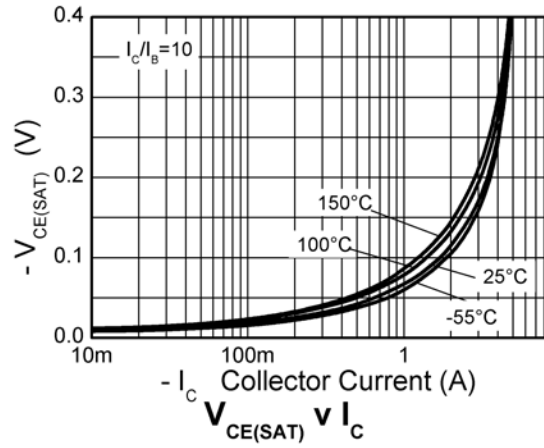
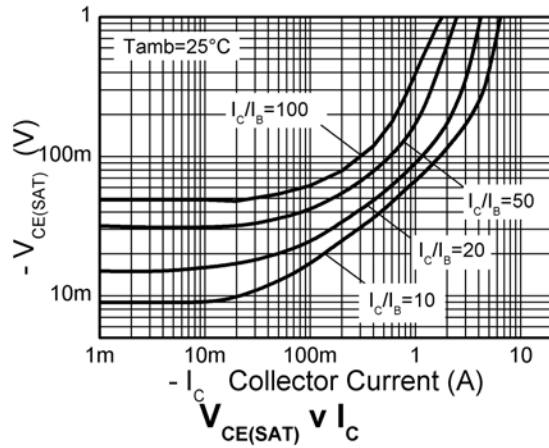
Electrical characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-45	-75		V	$I_C = -100\mu\text{A}$
Collector-emitter breakdown voltage (base open)	BV_{CEO}	-40	-65		V	$I_C = -10\text{mA}^{(*)}$
Emitter-collector breakdown voltage (reverse blocking)	BV_{ECO}	-3	-8.7		V	$I_E = -100\mu\text{A}^{(*)}$
Emitter-base breakdown voltage	BV_{EBO}	-7	-8.2		V	$I_E = -100\mu\text{A}$
Collector cut-off current	I_{CBO}		<-1	-50 -20	nA μA	$V_{CB} = -36\text{V}$ $V_{CB} = -36\text{V}, T_{amb} = 100^{\circ}\text{C}$
Emitter cut-off current	I_{EBO}		<-1	-50	nA	$V_{EB} = -5.6\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$		-75	-95	mV	$I_C = -0.5\text{A}, I_B = -20\text{mA}^{(*)}$
			-200	-290	mV	$I_C = -1\text{A}, I_B = -20\text{mA}^{(*)}$
			-95	-115	mV	$I_C = -1\text{A}, I_B = -100\text{mA}^{(*)}$
			-160	-190	mV	$I_C = -1.5\text{A}, I_B = -75\text{mA}^{(*)}$
			-245	-300	mV	$I_C = -3\text{A}, I_B = -300\text{mA}^{(*)}$
Base-emitter saturation voltage	$V_{BE(sat)}$		-915	-1000	mV	$I_C = -1.5\text{A}, I_B = -75\text{mA}^{(*)}$
Base-emitter turn-on voltage	$V_{BE(on)}$		-825	-900	mV	$I_C = -1.5\text{A}, V_{CE} = -2\text{V}^{(*)}$
Static forward current transfer ratio	h_{FE}	300	450	900		$I_C = -10\text{mA}, V_{CE} = -2\text{V}^{(*)}$
		120	200			$I_C = -1.5\text{A}, V_{CE} = -2\text{V}^{(*)}$
		15	40			$I_C = -3\text{A}, V_{CE} = -2\text{V}^{(*)}$
Transition frequency	f_T		270		MHz	$I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 50\text{MHz}$
Output capacitance	C_{obo}		17.4	25	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}^{(*)}$
Delay time	$t_{(d)}$		34		ns	$V_{CC} = -15\text{V}, I_C = -750\text{mA},$ $I_{B1} = I_{B2} = -15\text{mA}.$
Rise time	$t_{(r)}$		41		ns	
Storage time	$t_{(s)}$		266		ns	
Fall time	$t_{(f)}$		53		ns	

NOTES:

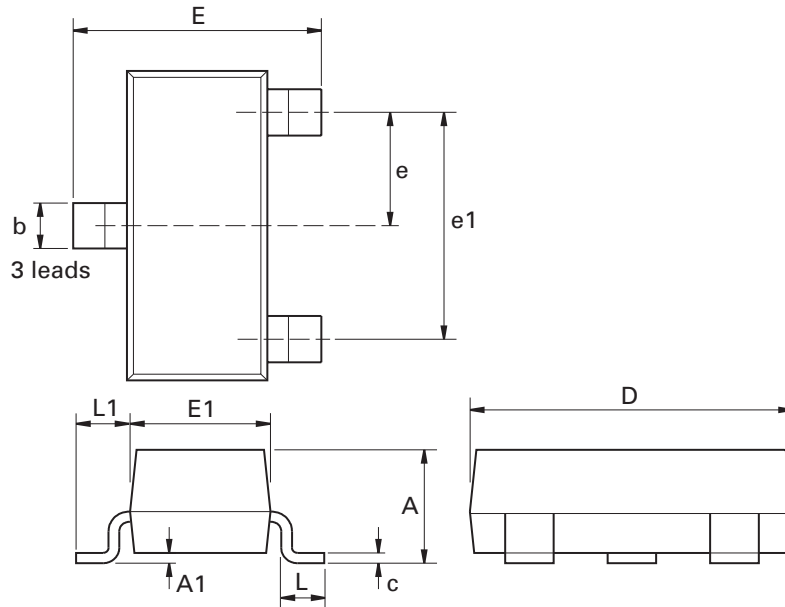
(*) Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$.

Typical characteristics



ZXTP25040DFL

Package outline - 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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