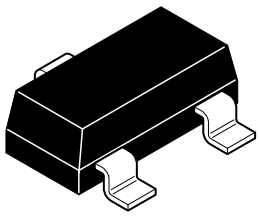
ZXTP25040DFL
40V, SOT23, PNP low power transistor

Summary



BV_{CEO} > -40V

BV_{ECO} > -3V

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

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

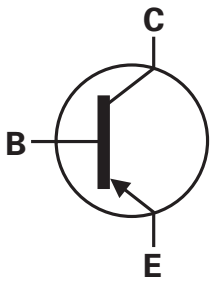
$R_{CE(sat)}$ = 82mΩ

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.

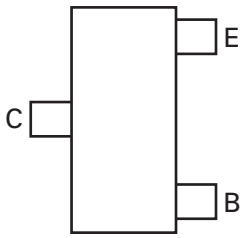


Features

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

Applications

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



Pinout - top view

Ordering information

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

Device marking

1A2

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°C[(a)]	P_D	350	mW
Linear derating factor		2.8	mW/°C
Operating and storage temperature range	T_j, T_{stg}	-55 to 150	°C

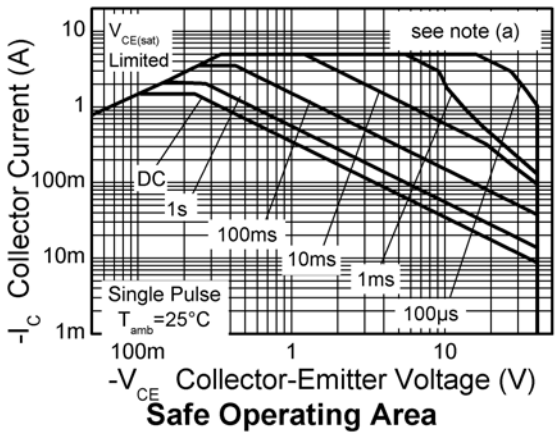
Thermal resistance

Parameter	Symbol	Limit	Unit
Junction to ambient[(a)]	$R_{\Theta JA}$	357	°C/W

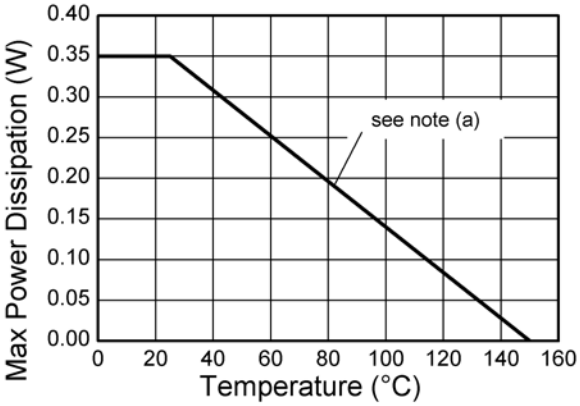
NOTES:

(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.

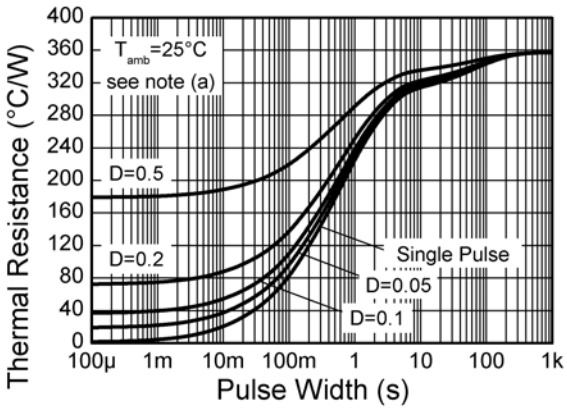
Characteristics



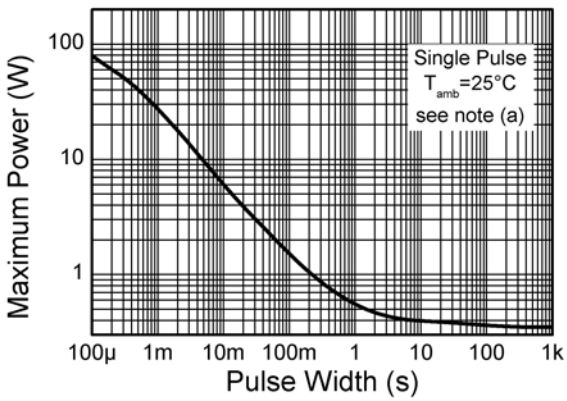
Safe Operating Area



Derating Curve



Transient Thermal Impedance



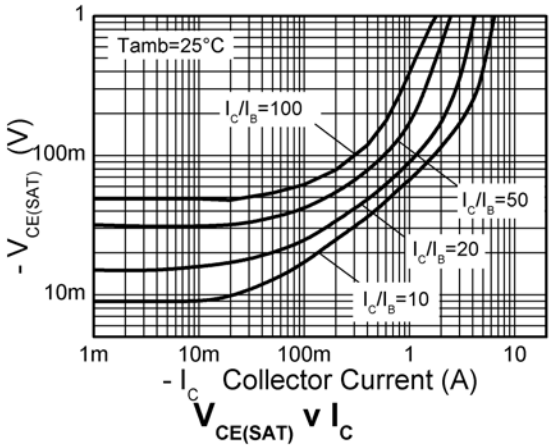
Pulse Power Dissipation

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

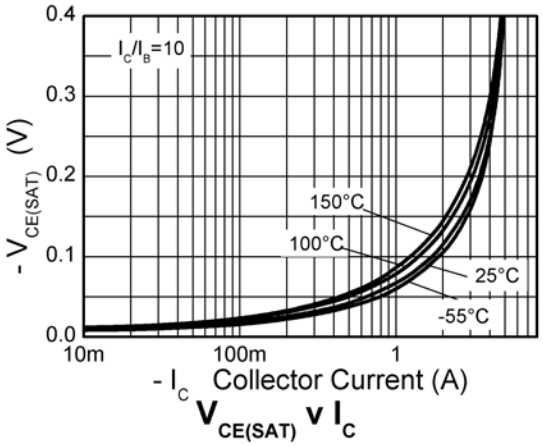
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-45	-75		V	I_C = -100μA
Collector-emitter breakdown voltage (base open)	BV_{CEO}	-40	-65		V	I_C = -10mA (*)
Emitter-collector breakdown voltage (reverse blocking)	BV_{ECO}	-3	-8.7		V	I_E = -100μA(*)
Emitter-base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

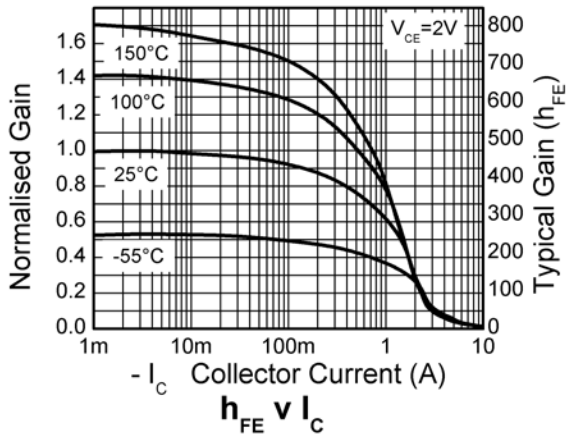
Typical characteristics



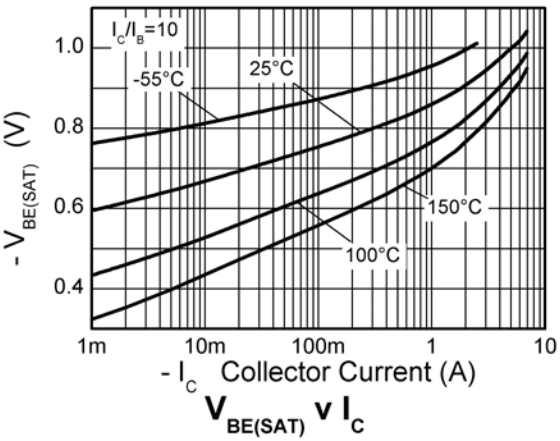
$V_{CE(SAT)}$ v I_C



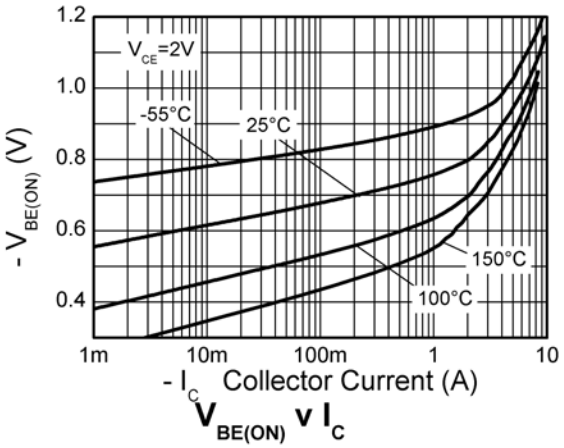
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C

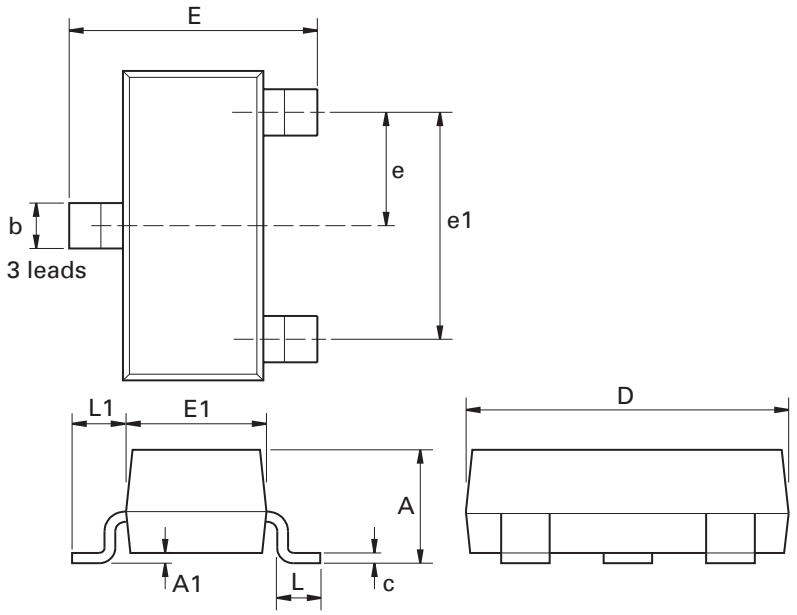


$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C

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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