

ZXTP2027F 60V, SOT23, PNP medium power transistor

Summary

 $V_{(BR)CEV} > -100V$, $V_{(BR)CEO} > -60V$

 $I_{C(cont)} = -4A$

 $R_{CE(sat)} = 31 \text{ m}\Omega \text{ typical}$

 $V_{CE(sat)} < -60 \text{ mV } @ -1A$

 $P_{D} = 1.2W$

Complementary part number ZXTN2018F

Description

Advanced process capability and package design have been used to maximize the power handling and performance of this small outline transistor. The compact size and ratings of this device make it ideally suited to applications where space is at a premium.

Features

- Higher power dissipation SOT23 package
- · High peak current
- · Low saturation voltage
- · 100V forward blocking voltage

Applications

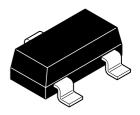
- · MOSFET and IGBT gate driving
- · Motor drive
- · Relay, lamp and solenoid drive
- · High side switches

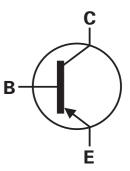
Ordering information

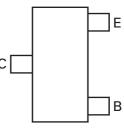
Device	Reel size (inches)	Tape width	Quantity per reel
ZXTP2027FTA	7	8mm	3,000

Device marking

951







Pinout - top view

Absolute maximum ratings

Parameter	Symbol	Limit	Unit
Collector-base voltage	V _{CBO}	-100	V
Collector-emitter voltage	V _{(BR)CEV}	-100	V
Collector-emitter voltage	V _{CEO}	-60	V
Emitter-base voltage	V _{EBO}	-7	V
Peak pulse current	Ісм	-10	А
Continuous collector current ^(b)	I _C	-4	Α
Base current	I _B	-1	Α
Power dissipation @ T _A =25°C ^(a)	P _D	1.0	W
Linear derating factor		8.0	mW/ ^o C
Power dissipation @ T _A =25°C ^(b)	P _D	1.2	W
Linear derating factor		9.6	mW/ ^o C
Power dissipation @ T _A =25°C ^(c)	P _D	1.56	W
Linear derating factor		12.5	mW/ ^o C
Operating and storage temperature	T _j :T _{stg}	-55 to +150	°C

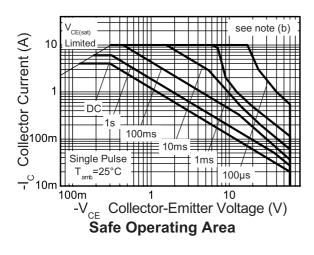
Thermal resistance

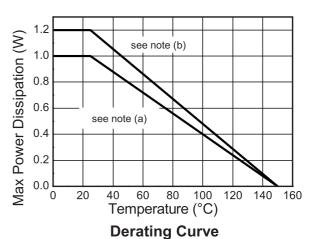
Parameter	Symbol	Value	Unit
Junction to ambient ^(a)	$R\theta_{JA}$	125	°C/W
Junction to ambient (b)	$R\theta_{JA}$	104	°C/W
Junction to ambient (c)	$R\theta_{JA}$	80	°C/W

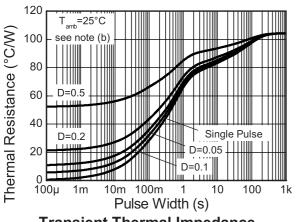
NOTES

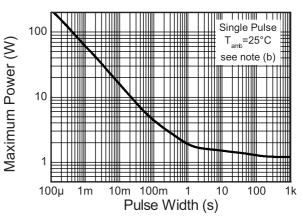
(a) Mounted on 18mm x 18mm x 1.6mm FR4 PCB with a very high coverage of 2 oz weight copper in still air conditions. (b) Mounted on 30mm x 30mm x 1.6mm FR4 PCB with a very high coverage of 2 oz weight copper in still air conditions. (c) As (b) above measured at t<5secs.

Characteristics



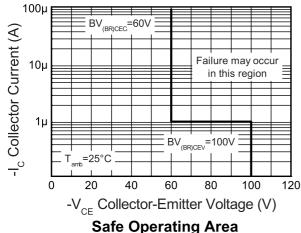






Transient Thermal Impedance

Pulse Power Dissipation

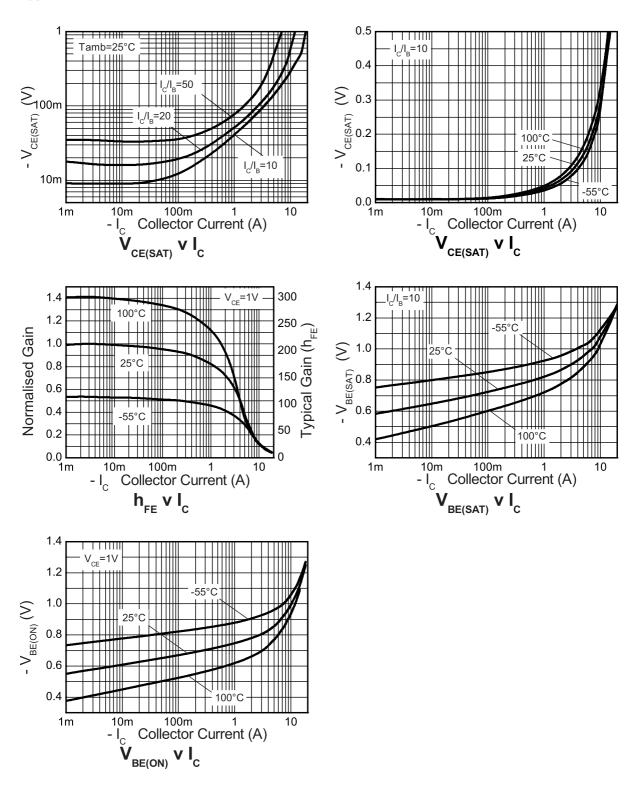


Electrical characteristics (at $T_{amb} = 25$ °C unless otherwise stated)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-base breakdown voltage	V _{(BR)CBO}	-100	-120		V	I _C =-100μA
Collector-emitter breakdown voltage	V _{(BR)CEV}	-100	-120		V	$I_C = -1\mu A$, 1V> $V_{BE} > -0.3V$
Collector-emitter breakdown voltage	V _{(BR)CEO}	-60	-75		V	I _C =-10mA ^(a)
Emitter-base breakdown voltage	V _{(BR)EBO}	-7.0	-8.2		٧	I _E =-100μA
Collector-emitter cut-off current	I _{CEV}			-20	nA	V _{CE} =-80V, V _{BE} = 1V
Collector-base cut-off current	I _{CBO}			-20	nA	V _{CB} =-80V
Emitter-base cut-off current	I _{EBO}			-10	nA	V _{EB} =-6V
Static forward current transfer	H _{FE}	100	250			I _C =-10mA, V _{CE} =-2V ^(a)
ratio		100	200	300		I _C =-2A, V _{CE} =-2V ^(a)
		80	145			Ic=-4A, V _{CE} =-2V ^(a)
		20	40			Ic=-10A, V _{CE} =-2V ^(a)
Collector-emitter saturation	V _{CE(SAT)}		-15	-25	mV	I _C =-100mA, I _B =-10mA ^(a)
voltage			-45	-60	mV	I _C =-1A, I _B =-100mA ^(a)
			-70	-95	mV	I _C =-2A, I _B =-200mA ^(a)
			-155	-240	mV	I _C =-4A, I _B =-200mA ^(a)
Base-Emitter saturation voltage	V _{BE(SAT)}		-0.89	-1.0	V	I _C =-4A, I _B =-200mA ^(a)
Base-Emitter turn-on voltage	V _{BE(on)}		-0.81	-0.95	V	I _C =-4A, V _{CE} =-2V ^(a)
Transition frequency	f _T		165		MHz	Ic=-100mA, V _{CE} =-10V, f=50MHz
Output capacitance	C _{obo}		44		pF	V _{CB} =-10V, f=1MHz
Delay timetime	t _(d)		12.6		ns	V _{CC} =-10V, I _C =-2A,
Rise time	t _(r)		10.2		ns	I _{B1} =I _{B2} =-200mA
Storage time	t _(stg)		220		ns	
Fall time	t _(f)		21		ns	

NOTES: (a) Measured under pulsed conditions. Pulse width=300 $\mu S.$ Duty cycle $\leq\!2\%.$

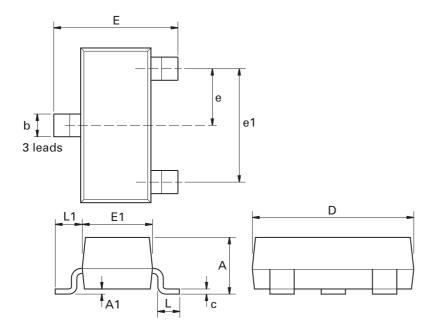
Typical characteristics



ZXTP2027F

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Package outline - SOT23



Dim.	Millin	neters	Inc	hes	Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
Α	-	1.12	-	0.044	e1	1.90	NOM	0.075	NOM
A1	0.01	0.10	0.0004	0.004	Е	2.10	2.64	0.083	0.104
b	0.30	0.50	0.012	0.020	E1	1.20	1.40	0.047	0.055
С	0.085	0.20	0.003	0.008	L	0.25	0.60	0.0098	0.0236
D	2.80	3.04	0.110	0.120	L1	0.45	0.62	0.018	0.024
е	0.95	NOM	0.037	NOM	-	-	-	-	-

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

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