

ZXTP2041F

40V PNP SILICON PLANAR MEDIUM POWER TRANSISTOR

Features

- $V_{(BR)CEO} > -40V$
- High current capability $I_C = -1A$
- Low saturation voltage $V_{CE(sat)} < -500mV @ -1A$
- "Lead Free", RoHS Compliant (Note 1)

Application

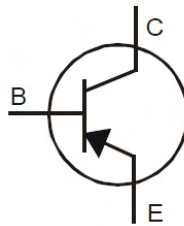
- Power MOSFET gate driving
- Low loss power switching

Mechanical Data

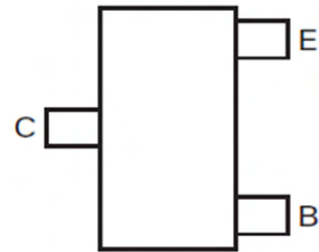
- Case: SOT23
- Moisture Sensitivity: Level 1 per J-STD-020
- UL Flammability Rating 94V-0
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)



Top View



Device symbol



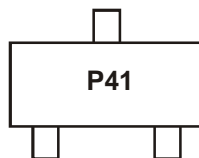
Pin-out Top

Ordering Information (Note 2)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP2041FTA	P41	7	8	3,000

- Notes:
1. No purposefully added lead.
 2. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



P41 = Product Type Marking Code

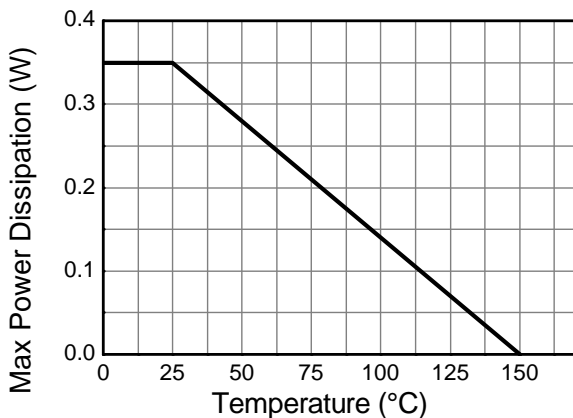
Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current (Note 3)	I_C	-1	A
Peak Pulse Current	I_{CM}	-2	A
Peak Base Current	I_{BM}	-1	A

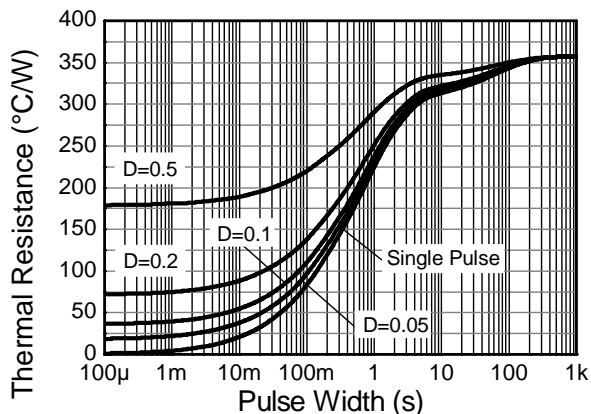
Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector Power Dissipation (Note 3)	P_D	350	mW
Thermal Resistance, Junction to Ambient (Note 3)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

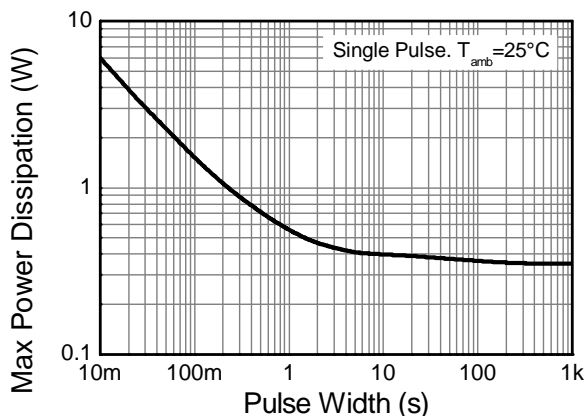
Notes: 3. For the device mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.



Derating Curve



Transient Thermal Impedance



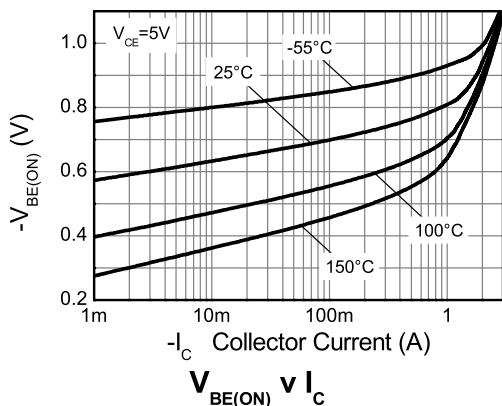
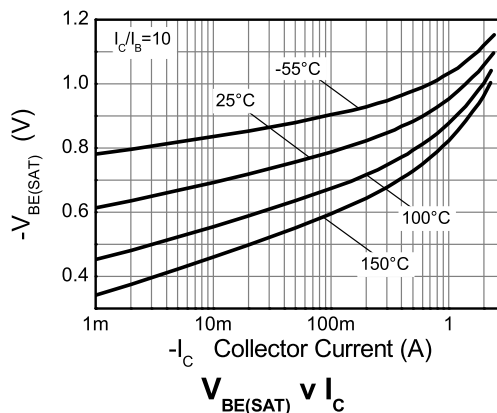
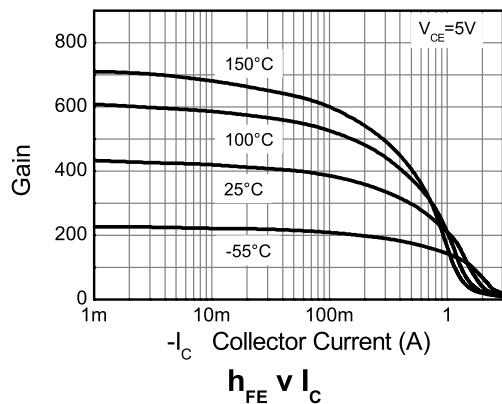
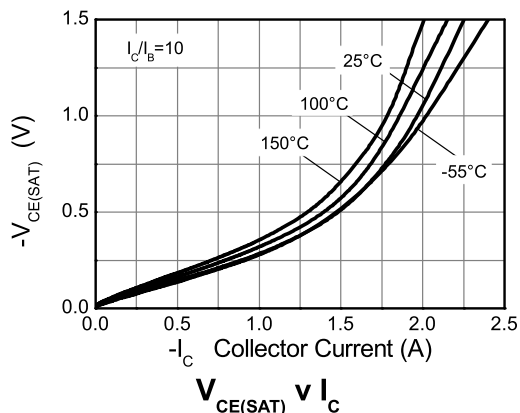
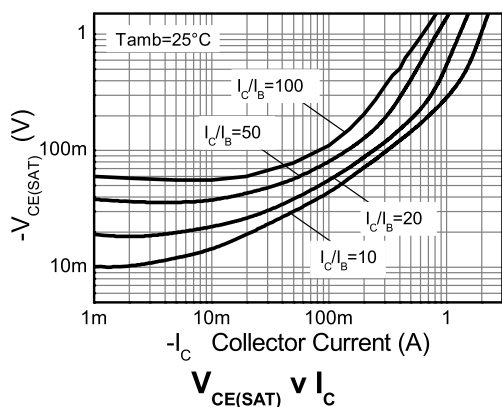
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

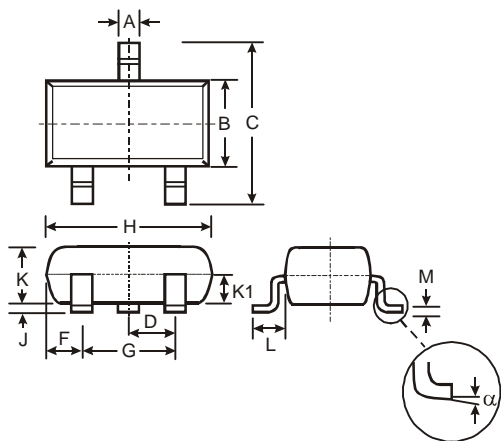
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-40	-	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 4)	V _{(BR)CEO}	-40	-	-	V	I _C = -10mA
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-5	-	-	V	I _E = -100μA
Collector Cutoff Current	I _{CBO}	-	-	-100	nA	V _{CB} = -30V
Emitter Cutoff Current	I _{EBO}	-	-	-100	nA	V _{EB} = -4V
Emitter Cutoff Current	I _{CES}	-	-	-100	nA	V _{CE} = -30V
DC current transfer Static ratio (Note 4)	h _{FE}	300	-	-	-	I _C = -1mA, V _{CE} = -5V
		300	-	800		I _C = -100mA, V _{CE} = -5V
		250	-	-		I _C = -500mA, V _{CE} = -5V
		160	-	-		I _C = -1A, V _{CE} = -5V
		30	-	-		I _C = -2A, V _{CE} = -5V
Collector-Emitter Saturation Voltage (Note 4)	V _{CE(sat)}	-	-	-0.20	V	I _C = -100mA, I _B = -1mA
		-	-	-0.35		I _C = -500mA, I _B = -20mA
		-	-	-0.50		I _C = -1A, I _B = -100mA
Base-Emitter Saturation Voltage (Note 4)	V _{BE(sat)}	-	-	-1.1	V	I _C = -1A, I _B = -100mA
Base-Emitter Turn-on Voltage (Note 4)	V _{BE(on)}	-	-	-1.0	V	I _C = -1A, V _{CE} = -5V
Transitional Frequency	f _T	150	300	-	MHz	I _C = -50mA, V _{CE} = -10V, f = 100MHz
Output capacitance	C _{obo}	-	-	10	pF	V _{CB} = -10V, f = 1MHz,
Switching Time	Delay Time	t _(d)	-	34.9	ns	V _{CC} = -10V, I _C = -500mA, I _{B1} = -I _{B2} = 25mA
	Rise Time	t _(r)	-	19.2		
	Storage Time	t _(s)	-	249		
	Fall Time	t _(f)	-	62		

Notes: 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

Typical Characteristics

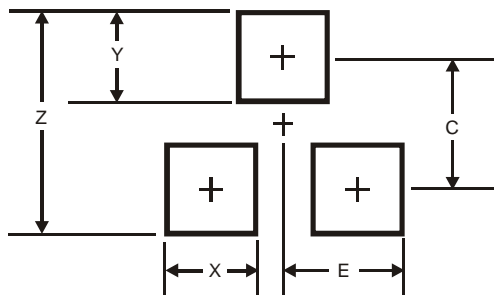


Package Outline Dimensions



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А