

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

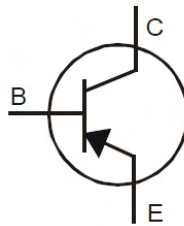
- Power MOSFET gate driving
- Low loss power switching

Mechanical Data

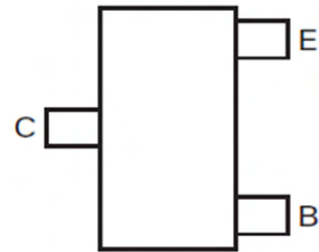
- Case: SOT23
- Moisture Sensitivity: Level 1 per J-STD-020
- UL Flammability Rating 94V-0
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)



Top View



Device symbol



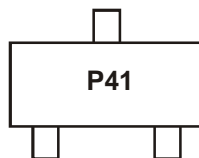
Pin-out Top

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

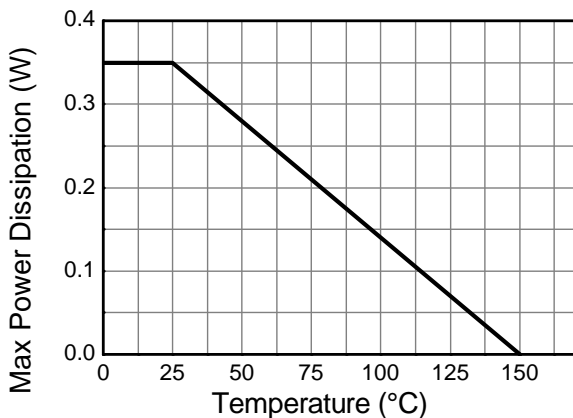
Maximum Ratings @T_A = 25°C unless otherwise specified

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

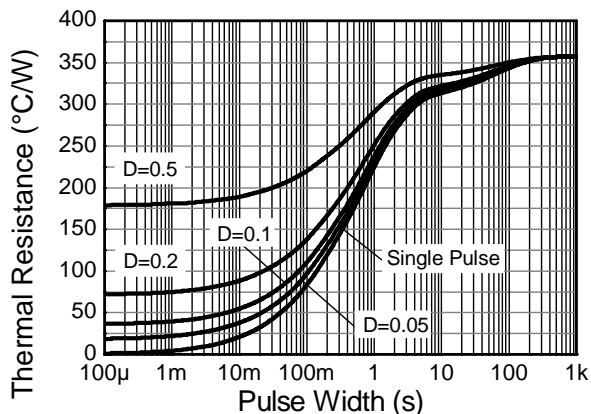
Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector Power Dissipation (Note 3)	P _D	350	mW
Thermal Resistance, Junction to Ambient (Note 3)	R _{θJA}	357	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

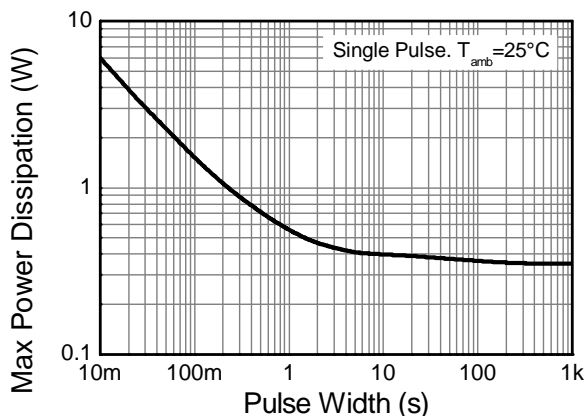
Notes: 3. For the device mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.



Derating Curve



Transient Thermal Impedance



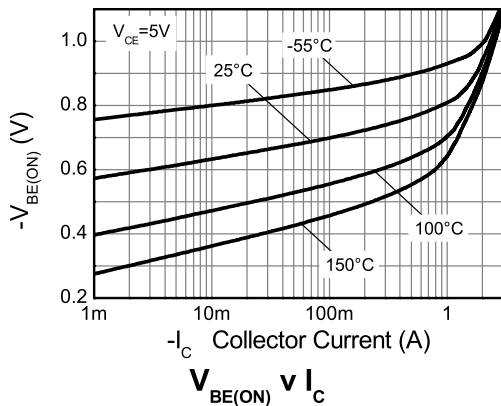
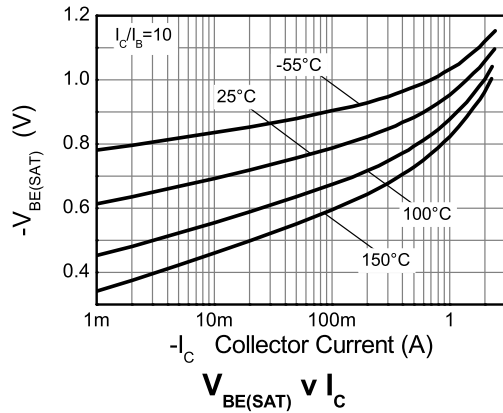
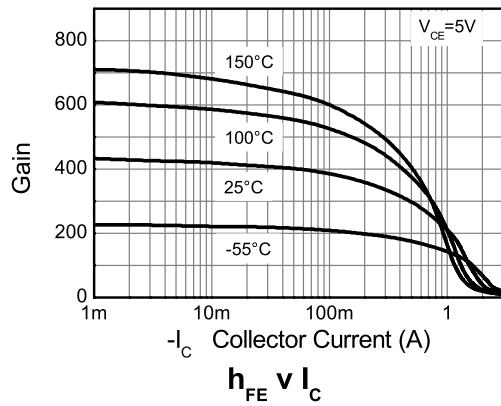
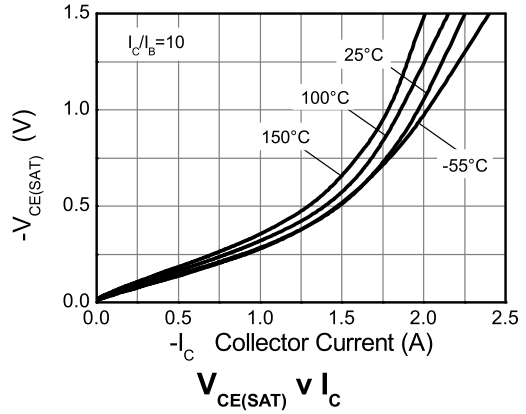
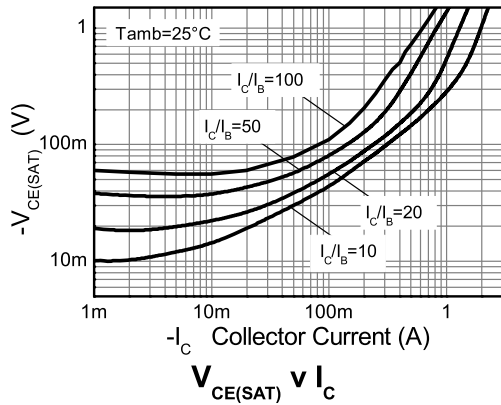
Pulse Power Dissipation

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

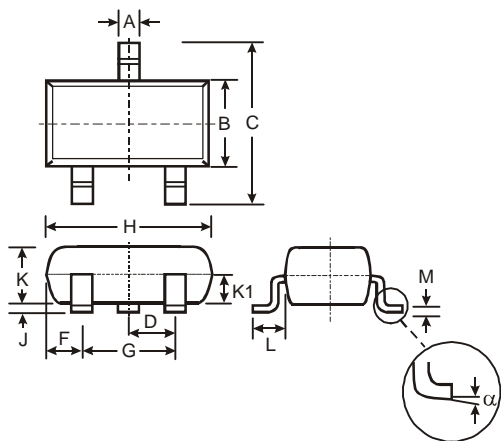
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40	-	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 4)	$V_{(BR)CEO}$	-40	-	-	V	$I_C = -10\text{mA}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-	-	V	$I_E = -100\mu\text{A}$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

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

Typical Characteristics

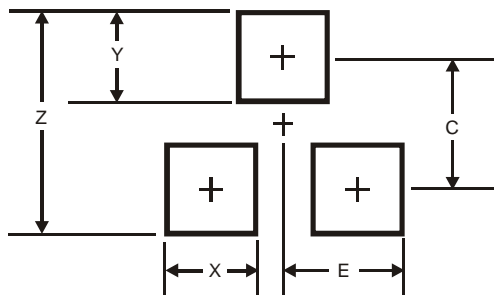


Package Outline Dimensions



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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