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)

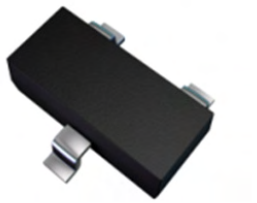
Application

- Power MOSFET gate driving
- Low loss power switching

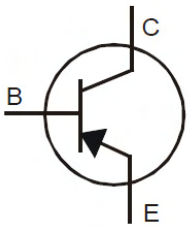
Mechanical Data

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

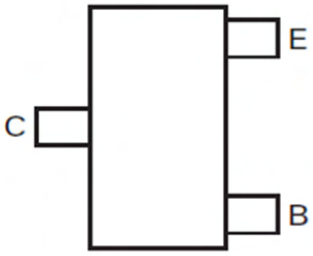
SOT23



Top View



Device symbol



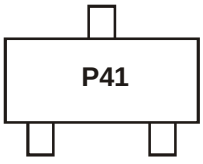
Pin-out Top

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

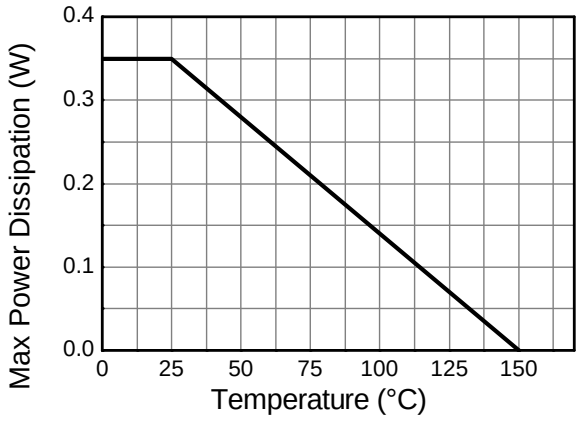
Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-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

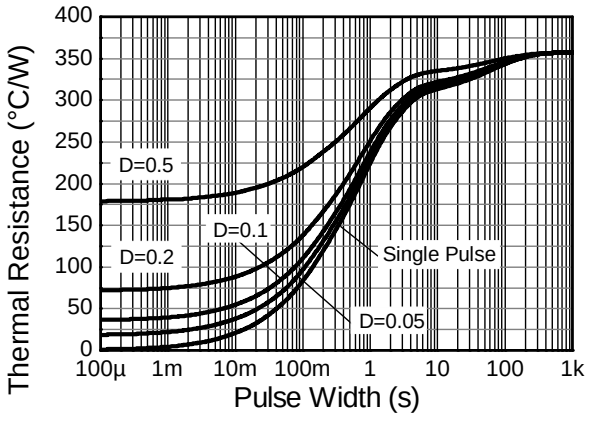
Thermal Characteristics @T_A = 25°C unless otherwise specified

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

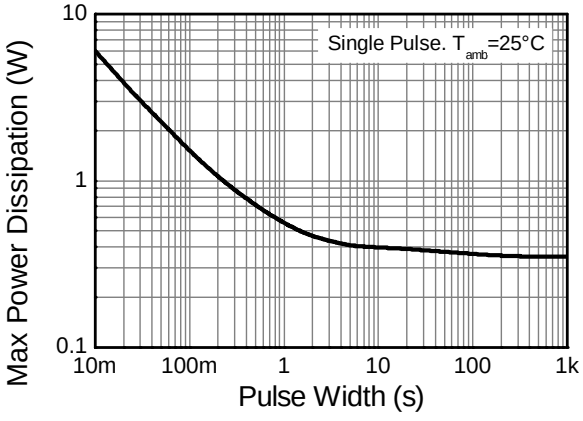
Notes: 3. For the device mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.



Derating Curve



Transient Thermal Impedance



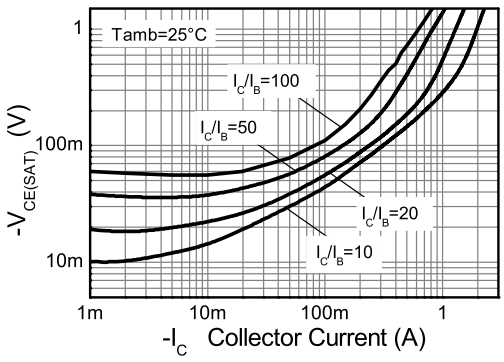
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

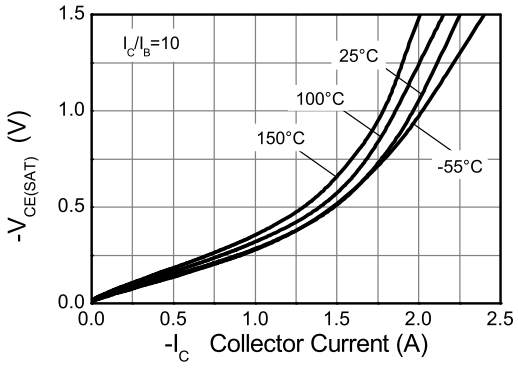
Characteristic		Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	-40	-	-	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 4)		$V_{(BR)CEO}$	-40	-	-	V	I_C = -10mA
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	-5	-	-	V	I_E = -100µA
Collector Cutoff Current		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%.

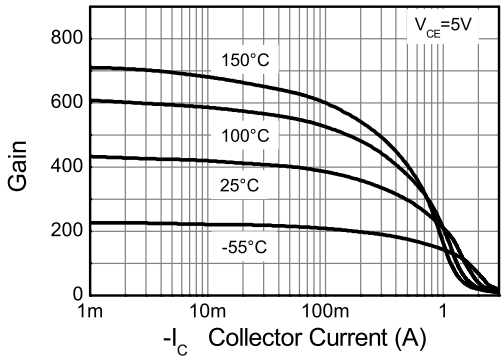
Typical Characteristics



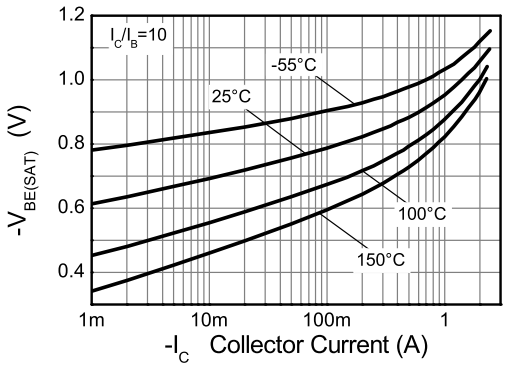
$V_{CE(SAT)}$ v I_C



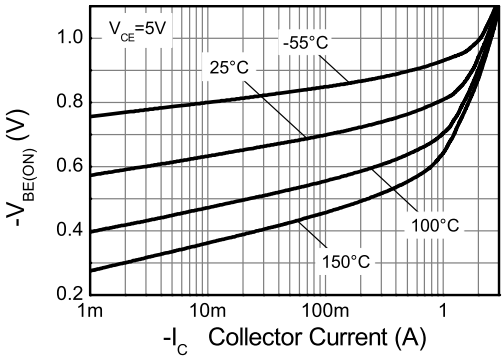
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C

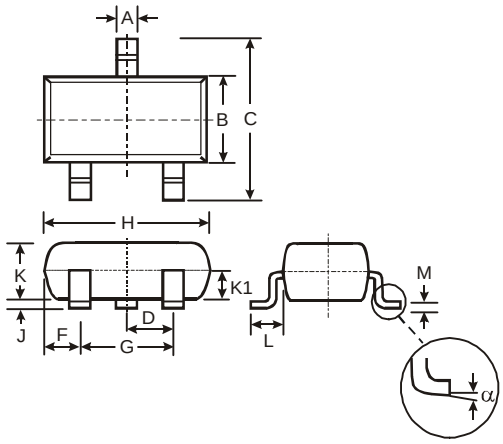


$V_{BE(SAT)}$ v I_C



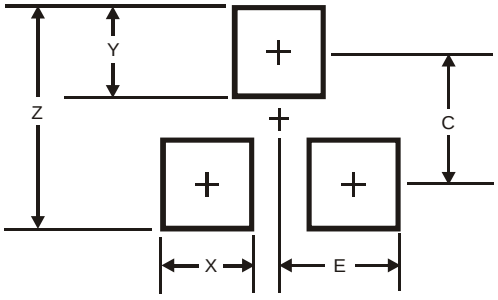
$V_{BE(ON)}$ v I_C

Package Outline 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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