ZXTP25040DFLTA Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	ZXTP25040DFLTA-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	ZXTP25040DFLTA
Description	TRANS PNP 40V 1.5A SOT23-3
Detailed Description	Bipolar (BJT) Transistor PNP 40 V 1.5 A 270MHz 350 mW Surface Mount SOT-23-3

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
ZXTP25040DFLTA	Diodes Incorporated
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP	1.5 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
40 V	300mV @ 300mA, 3A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
50nA (ICBO)	300 @ 10mA, 2V
Power - Max:	Frequency - Transition:
350 mW	270MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-236-3, SC-59, SOT-23-3	SOT-23-3
Base Product Number:	
ZXTP25040	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

Lead-free Green

A Product Line of
Diodes Incorporated

ZXTP25040DFL

40V PNP LOW POWER TRANSISTOR IN SOT23

Features

- BV_{CEO} > -40V
- BV_{ECO} > --3V
- I_C = -1.5A Continuous Collector Current
- $V_{CE(sat)}$ < -115mV @ -1A
- $R_{CE(sat)}$ = 82mΩ
- High Peak Current
- Complementary Part Number ZXTN25040DFL
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

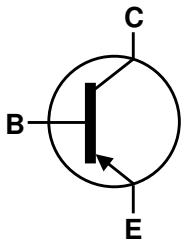
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.008 grams (Approximate)

Applications

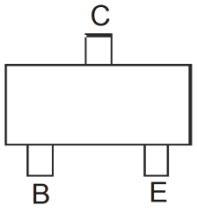
- MOSFET and IGBT Gate Driving
- DC-DC Converters

SOT23

Top View



Device Symbol



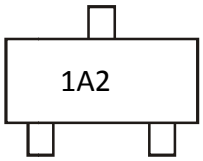
Top View
Pin-Out

Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP25040DFLTA	1A2	7	8	3,000

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



1A2 = Product Type Marking Code

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	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 (Note 5)	I_C	-1.5	A
Base Current	I_B	-500	mA
Peak Pulse Current	I_{CM}	-5	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

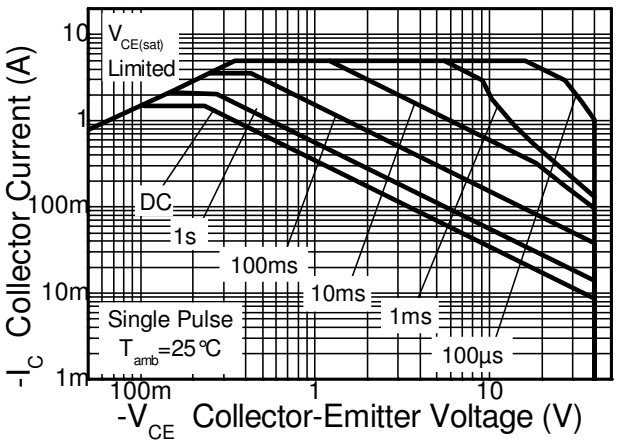
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	310	mW
	(Note 6)		350	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	403	°C/W
	(Note 6)		357	
Thermal Resistance, Junction to Leads	(Note 7)	$R_{\theta JL}$	350	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 8)

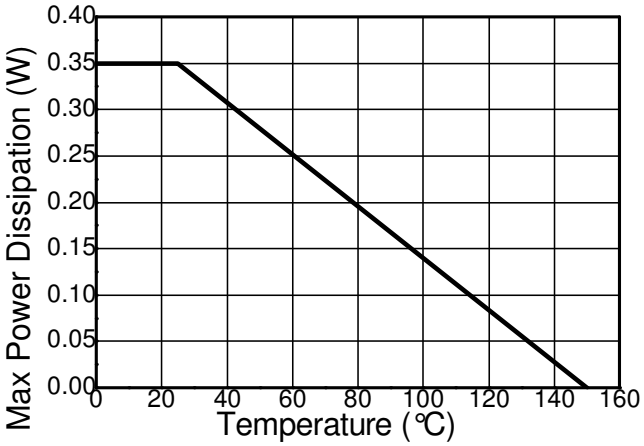
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:
5. For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Same as Note 5, except the device is mounted on 15 mm x 15mm 1oz copper.
7. Thermal resistance from junction to solder-point (at the end of the leads).
8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

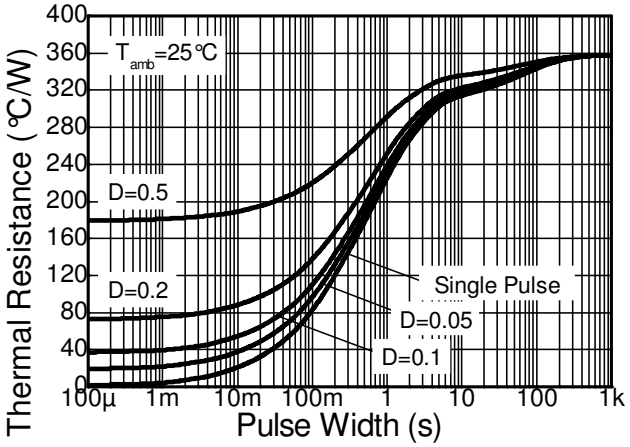
Thermal Characteristics and Derating Information



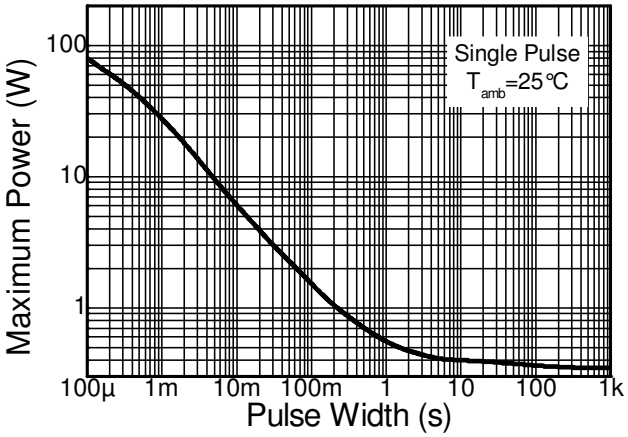
Safe Operating Area



Derating Curve



Transient Thermal Impedance



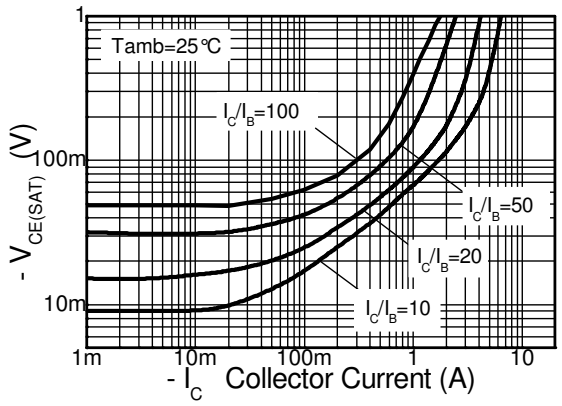
Pulse Power Dissipation

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

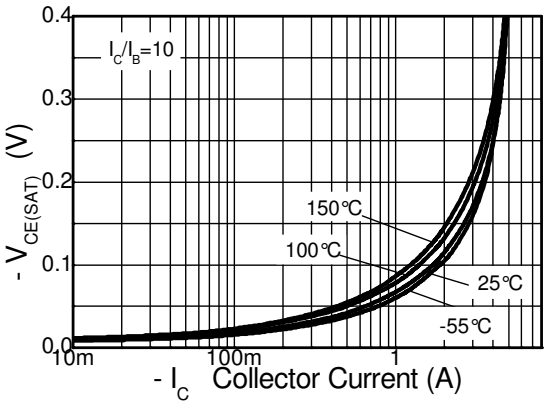
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-45	-75	-	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	-40	-65	-	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.2	-	V	I_E = -100µA
Emitter-Base Breakdown Voltage	BV_{ECO}	-3	-8.7	-	V	I_E = -100µA
Collector-Base Cutoff Current	I_{CBO}	-	< -1	-50	nA	V_{CB} = -36V
		-	-	-20	µA	V_{CB} = -36V, T_{amb} = +100°C
Emitter-Base Cutoff Current	I_{EBO}	-	< -1	-50	nA	V_{EB} = -5.6V
Static Forward Current Transfer Ratio (Note 9)	h_{FE}	300	450	900	-	I_C = -10mA, V_{CE} = -2V
		120	200	-		I_C = -1.5A, V_{CE} = -2V
		15	40	-		I_C = -3A, V_{CE} = -2V
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(sat)}$	-	-75	-95	mV	I_C = -0.5A, I_B = -20mA
		-	-200	-290		I_C = -1A, I_B = -20mA
		-	-95	-115		I_C = -1A, I_B = -100mA
		-	-160	-190		I_C = -1.5A, I_B = -75mA
		-	-245	-300		I_C = -3A, I_B = -300mA
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(sat)}$	-	-915	-1000	mV	I_C = -1.5A, I_B = -75mA
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(on)}$	-	-825	-900	mV	I_C = -1.5A, V_{CE} = -2V
Output Capacitance	C_{obo}	-	17.4	25	pF	V_{CB} = -10V, f = 1MHz
Transition Frequency	f_T	-	270	-	MHz	V_{CE} = -10V, I_C = -50mA, f = 50MHz
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: 9. Measured under pulsed conditions. Pulse width ≤ 300 µs. Duty cycle ≤ 2%.

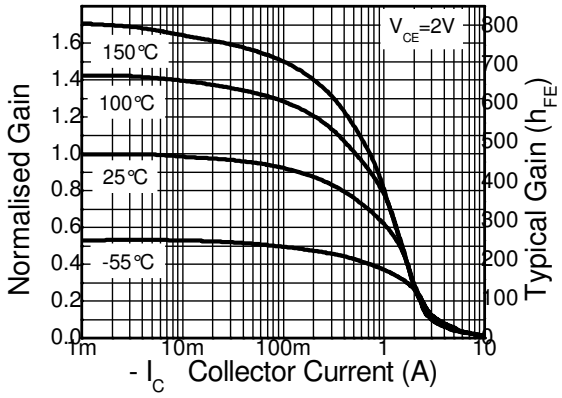
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



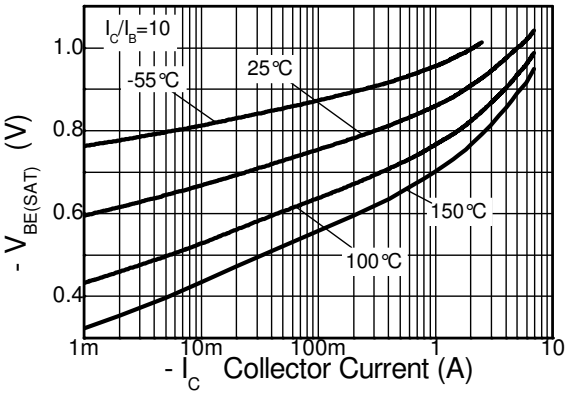
$V_{CE(SAT)}$ v I_C



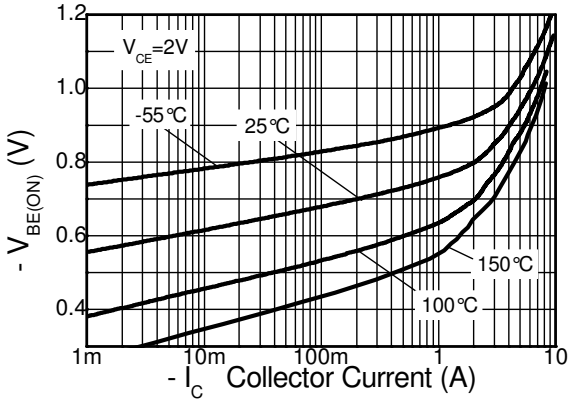
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C



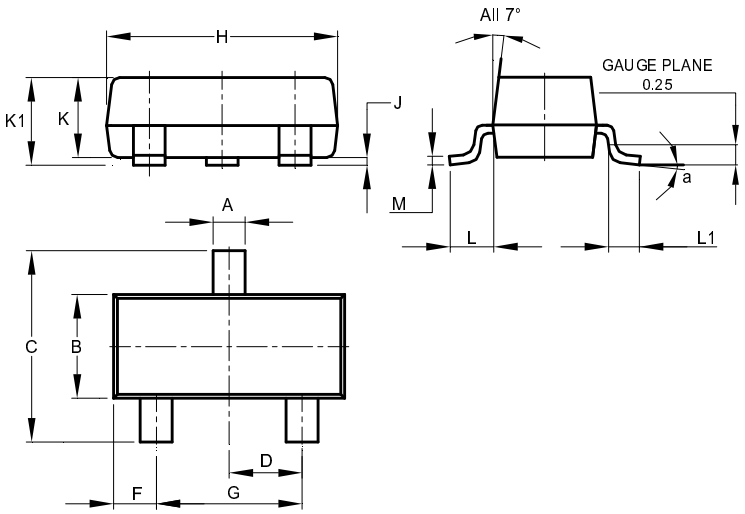
$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C

Package Outline Dimensions

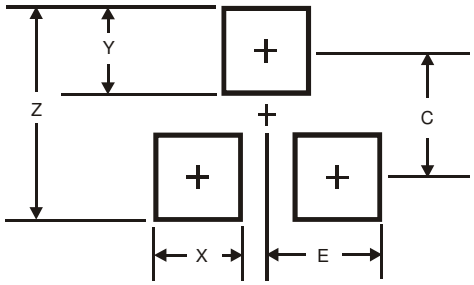
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



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

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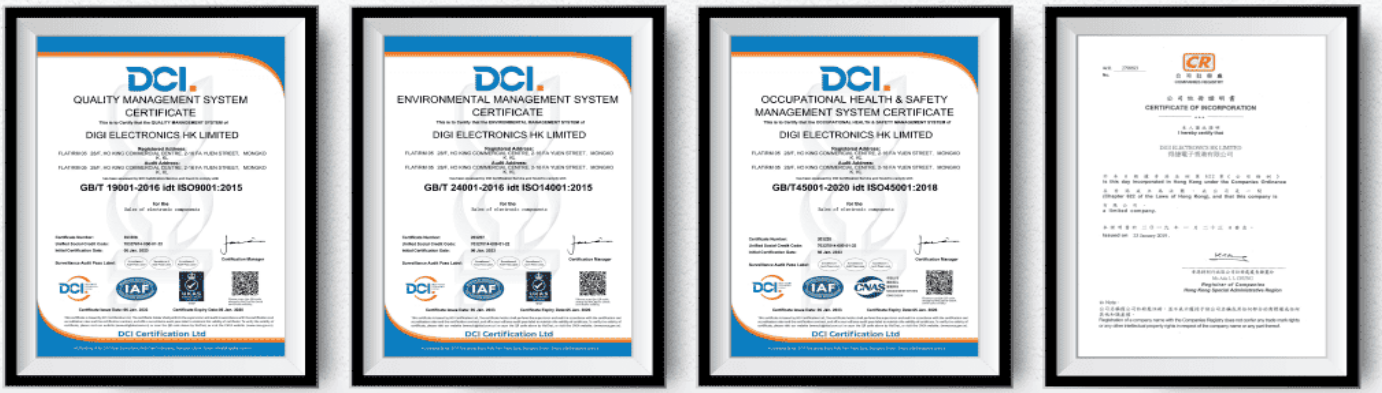

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