



DZTA42

Features

- $BV_{CEO} > 300V$
- I_C = 500mA high Collector Current
- 2W Power Dissipation
- Low Saturation Voltage V_{CE(sat)} < 500mV @ 20mA
- Complementary PNP Type: DZTA92
- 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
- An Automotive-Compliant Part is Available Under Separate Datasheet (DZTA42Q)

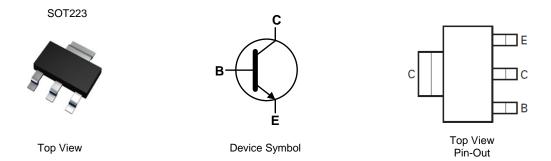
300V NPN HIGH VOLTAGE TRANSISTOR IN SOT223

Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 @3)
- Weight: 0.112 grams (Approximate)

Applications

- Switch-Mode Power Supplies (SMPS)
- Video Output Stages
- Motor Driver



Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape width (mm)	Quantity per reel
DZTA42-13	AEC-Q101	K3M	13	12	2,500
Notes: 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.					

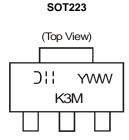
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green"

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



K3M = Product Type Marking Code YWW = Date Code Marking Y = Last Digit of Year ex: 6 = 2016 WW = Week code 01 - 52



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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	300	V
Collector-Emitter Voltage	V _{CEO}	300	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current	Ι _C	500	mA
Base Current	Ι _Β	100	mA

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

Characteristic	Symbol	Value	Unit		
Power Dissipation	(Note 5)	р	2	W	
	(Note 6)	- P _D	1	vv	
Thermal Resistance, Junction to Ambient	(Note 5)	Devi	62	°C/W	
mermai Resistance, Junction to Ambient	(Note 6)	R _{0JA}	125	C/VV	
Thermal Resistance, Junction to Leads (Note 7)		R _{θJL}	19.4	°C/W	
Operating and Storage Temperature Range	T _{J,} T _{STG}	-65 to +150	°C		

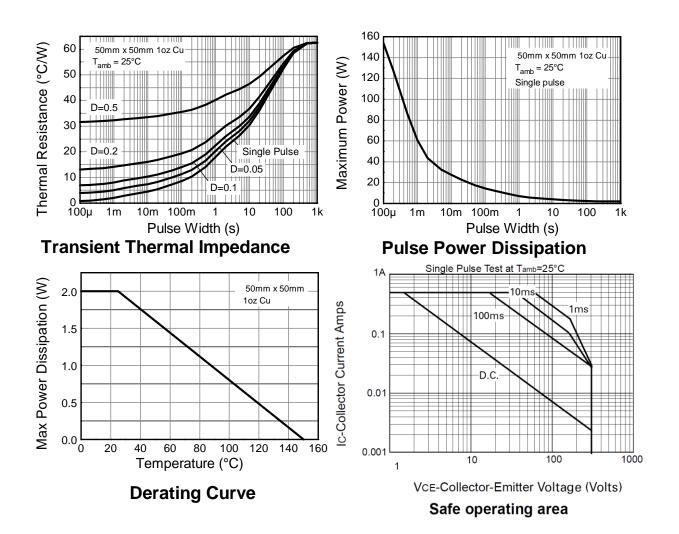
ESD Ratings (Note 8)

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

Notes: 5. For a device mounted with the collector lead on 50mm x 50mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured For a device mounted with the collector lead on somm x somm to 2 copper that is under still air conditions whilst operating in a steady-state.
Same as note (5), except mounted on minimum recommended pad (MRP) layout.
Thermal resistance from junction to solder-point (at the end of the collector lead).
Refer to JEDEC specification JESD22-A114 and JESD22-A115.



Thermal Characteristics and Derating Information



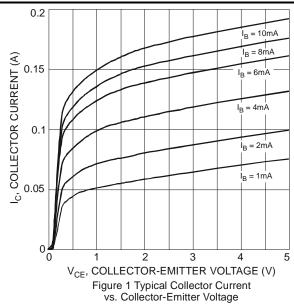


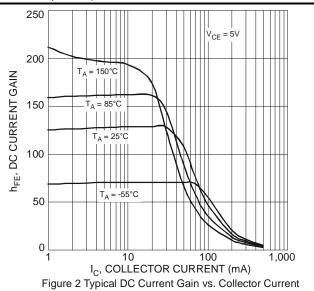
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV _{CBO}	300	-	_	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV _{CEO}	300	—		V	I _C = 1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	6	_	_	V	I _E = 100μA
Collector-Base Cut-off Current	I _{CBO}	_	_	0.1	μA	V _{CB} = 200V
Emitter-Base Cut-off Current	I _{EBO}	_	_	0.1	μA	$V_{EB} = 6V, I_{C} = 0$
ON CHARACTERISTICS (Note 9)						
Collector-Emitter Saturation Voltage	V _{CE(sat)}	_	_	0.5	V	$I_{C} = 20mA, I_{B} = 2mA$
Base-Emitter Saturation Voltage	V _{BE(sat)}	_	_	0.9	V	$I_{C} = 20mA, I_{B} = 2mA$
		25	_	_		$I_{C} = 1mA, V_{CE} = 10V$
Static Forward Current Transfer Ratio	h _{FE}	40	—	—		$I_{C} = 10mA, V_{CE} = 10V$
		40	_	_		$I_{C} = 30mA, V_{CE} = 10V$
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f _T	50	_	_	MHz	$I_C = 10$ mA, $V_{CE} = 20V$ f = 100MHz
Output Capacitance	Cobo	_	_	3	pF	$V_{CB} = 20V, f = 1MHz$

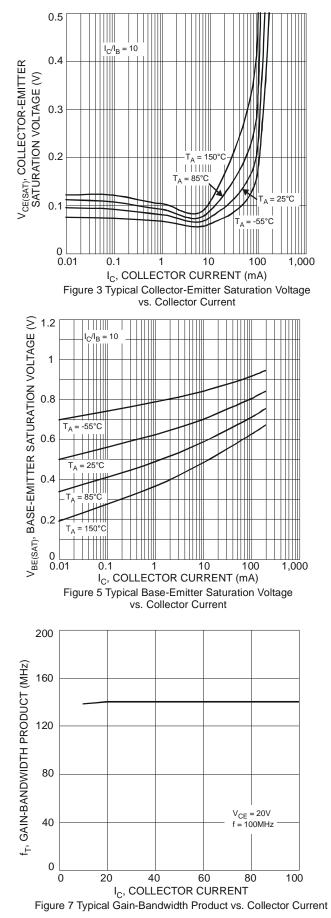
Note: 9. Measured under pulsed conditions. Pulse width \leq 300µs. Duty cycle \leq 2%.

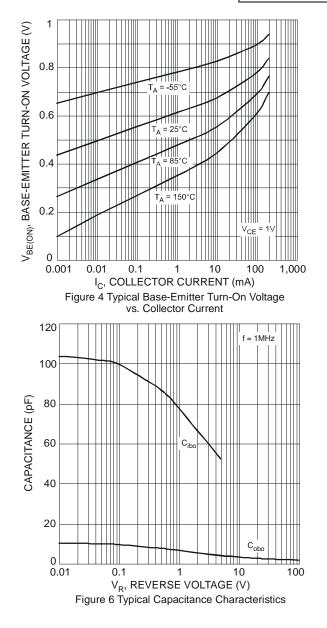
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)







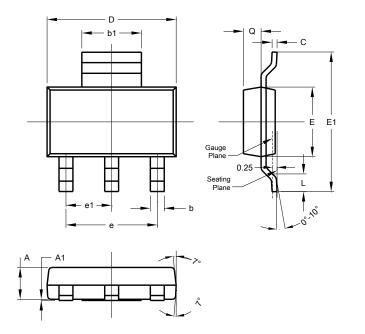






Package Outline Dimensions

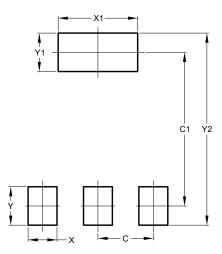
Please see http://www.diodes.com/package-outlines.html for the latest version.



SOT223					
Dim	Min	Max	Тур		
Α	1.55	1.65	1.60		
A1	0.010	0.15	0.05		
b	0.60	0.80	0.70		
b1	2.90	3.10	3.00		
С	0.20	0.30	0.25		
D	6.45	6.55	6.50		
Е	3.45	3.55	3.50		
E1	6.90	7.10	7.00		
е	-	-	4.60		
e1	-	-	2.30		
L	0.85	1.05	0.95		
q	0.84	0.94	0.89		
All Dimensions in mm					

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.



Dimensions	Value (in mm)
С	2.30
C1	6.40
Х	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device terminals and PCB tracking.



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