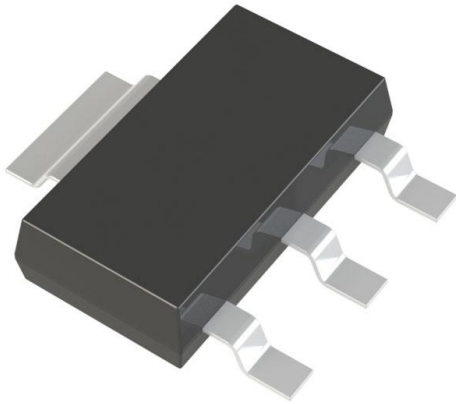


DZT853-13 Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	DZT853-13-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	DZT853-13
Description	TRANS NPN 100V 6A SOT223-3
Detailed Description	Bipolar (BJT) Transistor NPN 100 V 6 A 130MHz 1 W Surface Mount SOT-223-3



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

DZT853-13

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

100 V

Current - Collector Cutoff (Max):

10nA (ICBO)

Power - Max:

1 W

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

TO-261-4, TO-261AA

Base Product Number:

DZT853

Manufacturer:

Diodes Incorporated

Product Status:

Obsolete

Current - Collector (Ic) (Max):

6 A

Vce Saturation (Max) @ Ib, Ic:

340mV @ 500mA, 5A

DC Current Gain (hFE) (Min) @ Ic, Vce:

100 @ 2A, 2V

Frequency - Transition:

130MHz

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-223-3

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0075

Moisture Sensitivity Level (MSL):

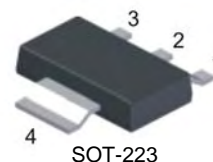
1 (Unlimited)

ECCN:

EAR99

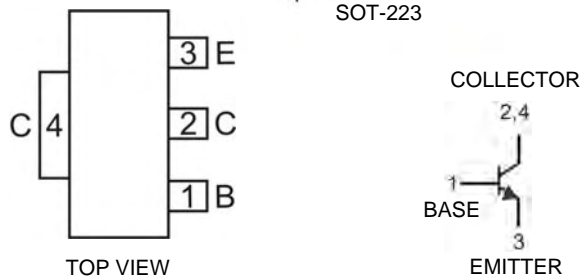
Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DZT953)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**



Mechanical Data

- Case: SOT-223
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish — Matte Tin annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.115 grams (approximate)



Schematic and Pin Configuration

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	200	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	6	A
Power Dissipation	P_{tot}	1 (Note 3) 3 (Note 4)	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 3. Device mounted on FR-4 PCB, pad layout as shown on page 4.
 4. The power which can be dissipated, assuming the device is mounted in a typical manner on a PCB with copper equal to 4 square inch minimum.



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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	200	—	—	V	$I_C = 100\mu\text{A}$, $I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	100	—	—	V	$I_C = 10\text{mA}^*$, $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	—	—	V	$I_E = 100\mu\text{A}$, $I_C = 0$
Collector Cutoff Current	I_{CBO}	—	—	10	nA	$V_{CB} = 150\text{V}$, $I_E = 0$
Emitter Cutoff Current	I_{EBO}	—	—	10	nA	$V_{EB} = 6\text{V}$, $I_C = 0$
ON CHARACTERISTICS						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	—	50 150 340	mV	$I_C = 0.1\text{A}$, $I_B = 5\text{mA}^*$ $I_C = 2\text{A}$, $I_B = 100\text{mA}^*$ $I_C = 5\text{A}$, $I_B = 500\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	—	1250	mV	$I_C = 5\text{A}$, $I_B = 500\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	—	—	1100	mV	$I_{CE} = 5\text{A}$, $V_{CE} = 2\text{V}^*$
DC Current Gain	h_{FE}	100 100 50 20	—	— 300 — —	—	$I_C = 10\text{mA}$, $V_{CE} = 2\text{V}^*$ $I_C = 2\text{A}$, $V_{CE} = 2\text{V}^*$ $I_C = 4\text{A}$, $V_{CE} = 2\text{V}^*$ $I_C = 10\text{A}$, $V_{CE} = 2\text{V}^*$
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f_T	—	130	—	MHz	$I_C = 100\text{mA}$, $V_{CE} = 10\text{V}$, $f = 50\text{MHz}$
Output Capacitance	C_{obo}	—	35	—	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$
SWITCHING CHARACTERISTICS						
Switching Times	t_{on} t_{off}	—	50 1650	—	ns ns	$I_C = 1\text{A}$, $V_{CC} = 10\text{V}$ $I_{B1} = I_{B2} = 100\text{mA}$

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

Typical Characteristics @ $T_{amb} = 25^\circ\text{C}$ unless otherwise specified

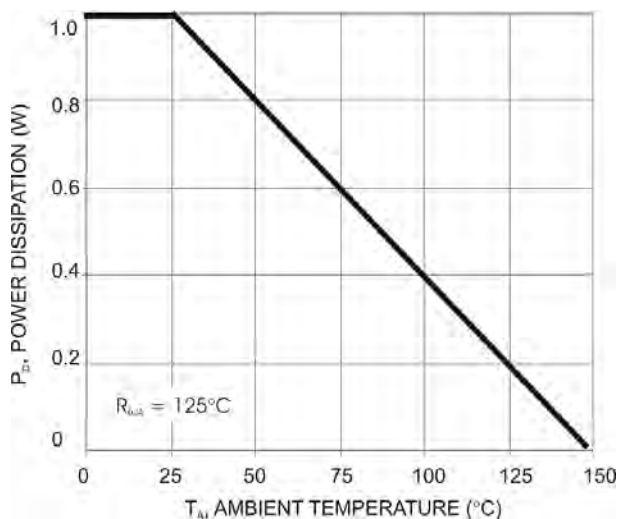


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

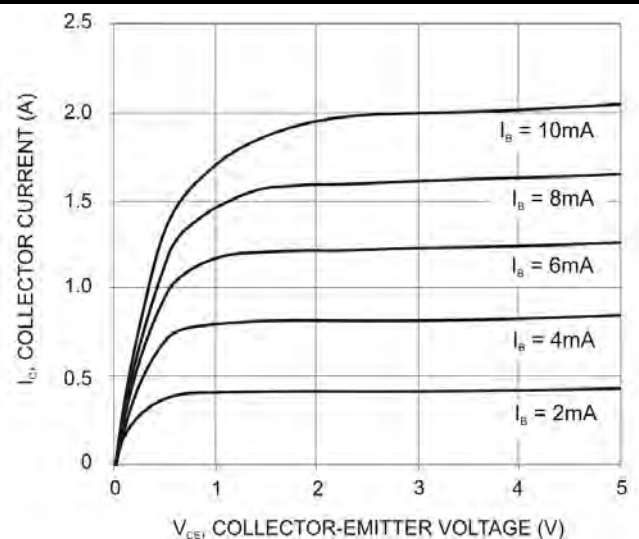


Fig. 2 Collector Current vs. Collector Emitter-Voltage

Notes: 3. Device mounted on FR-4 PCB, pad layout as shown on page 4.



NEW PRODUCT

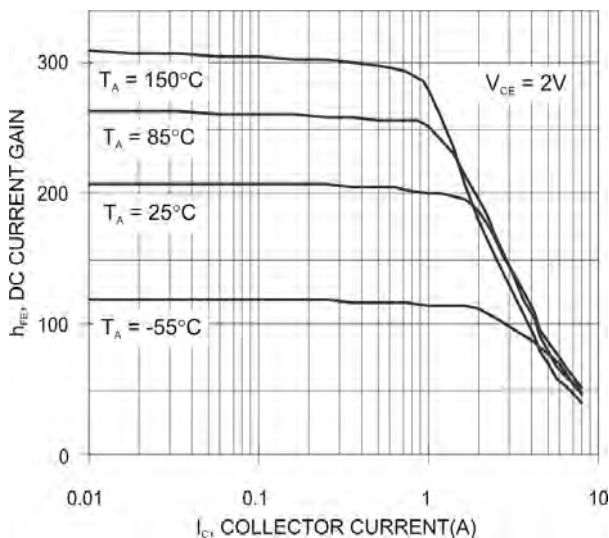


Fig. 3 Typical DC Current Gain vs. Collector Current

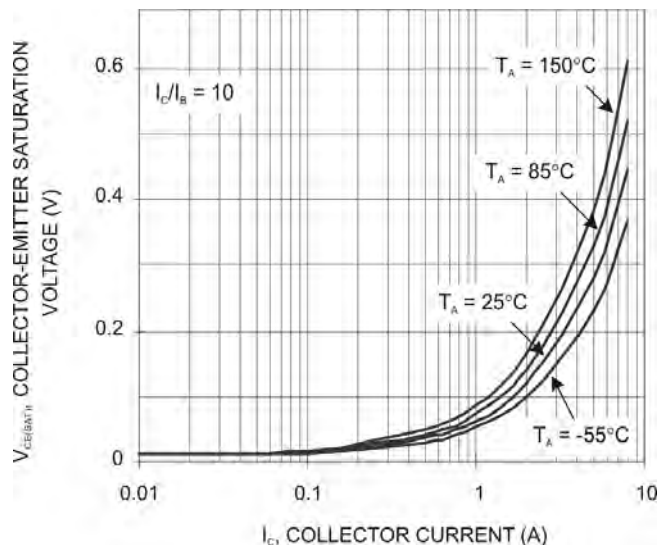


Fig. 4 Collector-Emitter Saturation Voltage vs. Collector Current

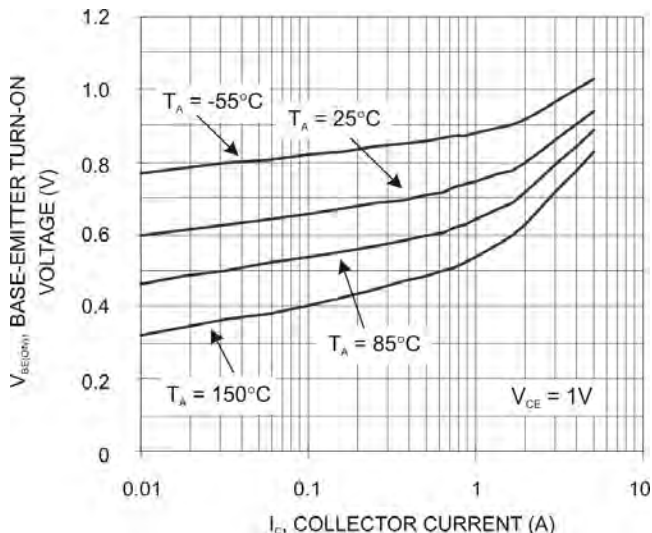


Fig. 5 Base-Emitter Turn-On Voltage vs. Collector Current

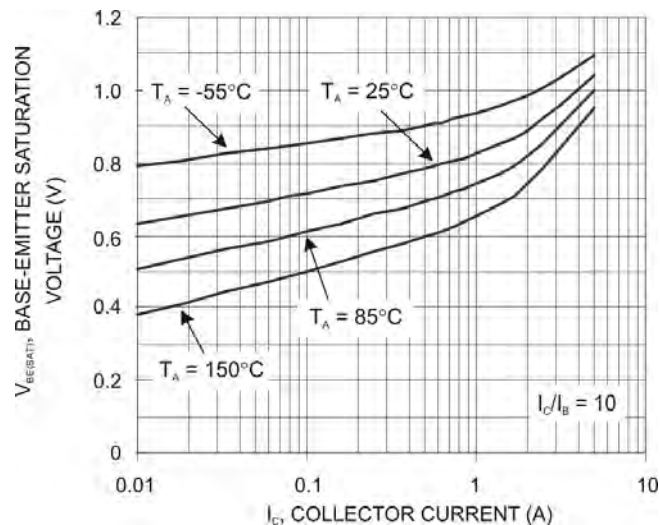


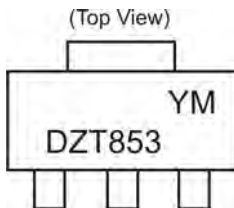
Fig. 6 Base-Emitter Saturation Voltage vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
DZT853-13	SOT-223	2500/Tape & Reel

Notes: 5. Packaging Details as shown on page 4, or go to our website at <http://www.diodes.com/ap2007.pdf>.

Marking Information



DZT853 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

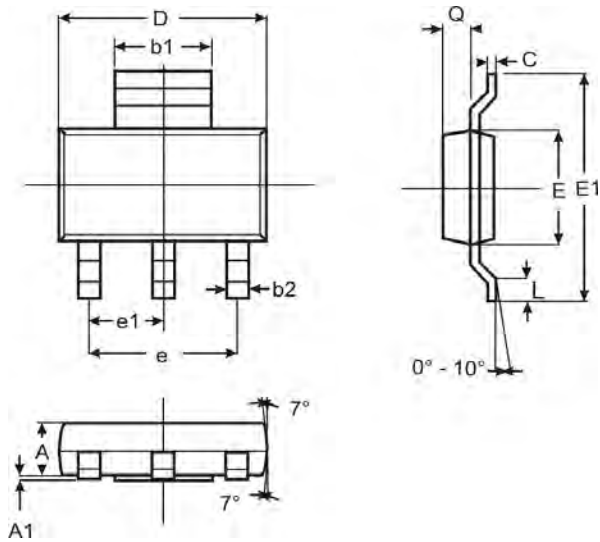
Year	2006	2007	2008	2009	2010	2011	2012
Code	T	U	V	W	X	Y	Z

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D



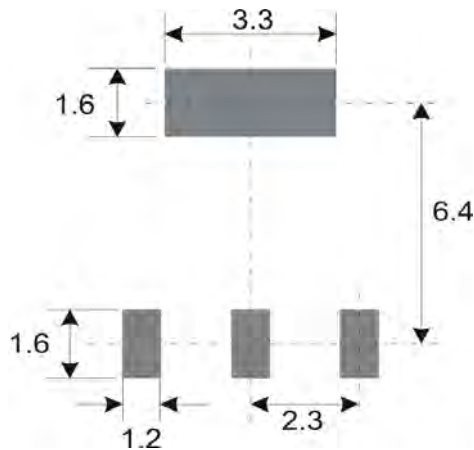
NEW PRODUCT

Package Outline Dimensions



SOT-223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b1	2.90	3.10	3.00
b2	0.60	0.80	0.70
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	—	—	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: (Based on IPC-SM-782)



(Unit:mm)

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