

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

Features

- $BV_{CEO} > 100V$
- $I_C = 2A$ High Continuous Collector Current
- $I_{CM} = 6A$ Peak Collector Current
- P_D up to 3.2W
- 43% smaller than SOT223; 60% smaller than TO252
- Maximum height just 1.1mm
- **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: PowerDI5
- 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 @3
- Weight: 0.093 grams (approximate)

Applications

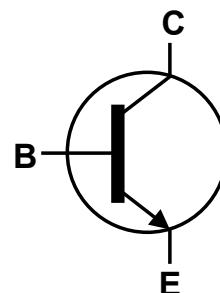
- Voltage Regulator using Emitter-Follower
- DC-DC Converter
- Telecoms
- Power Management



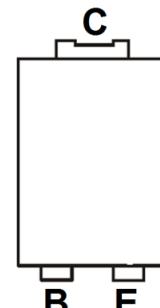
Top View



Bottom View



Device Schematic



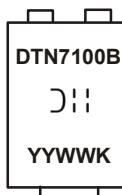
Top View
Pin-Out

Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DXTN07100BP5-13	AEC-Q101	DTN7100B	13	16	5,000

- 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



DTN7100B = Product Type Marking Code
DII = Manufacturers' Code Marking
K = Factory Designator
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 09 for 2009)
WW = Week code (01 to 53)

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	120	V
Collector-Emitter Voltage	V _{CEO}	100	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	I _C	2	A
Peak Pulse Current	I _{CM}	6	A

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

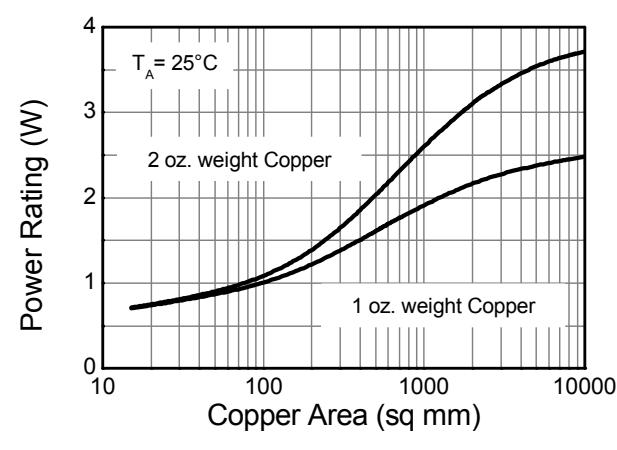
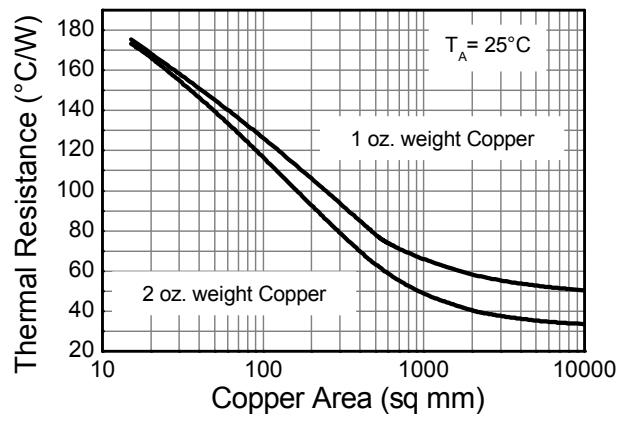
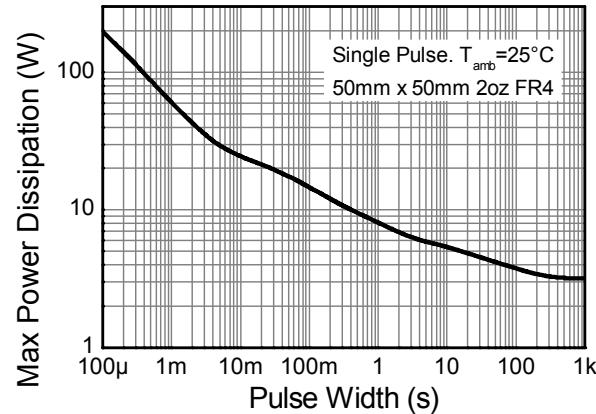
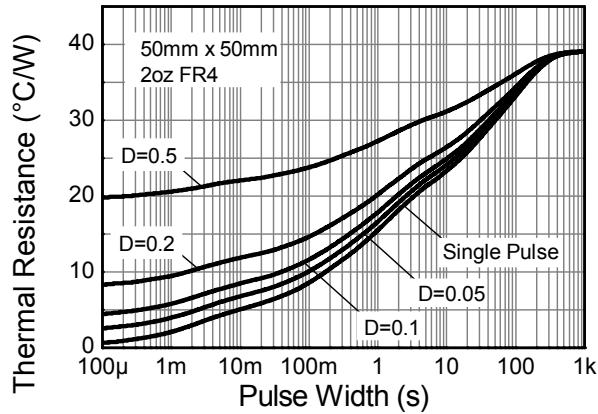
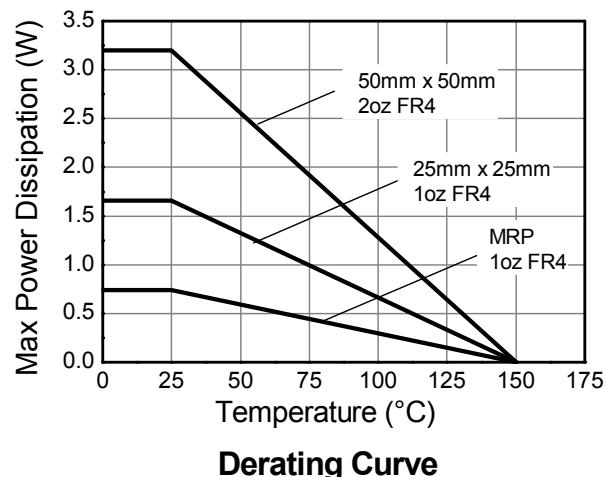
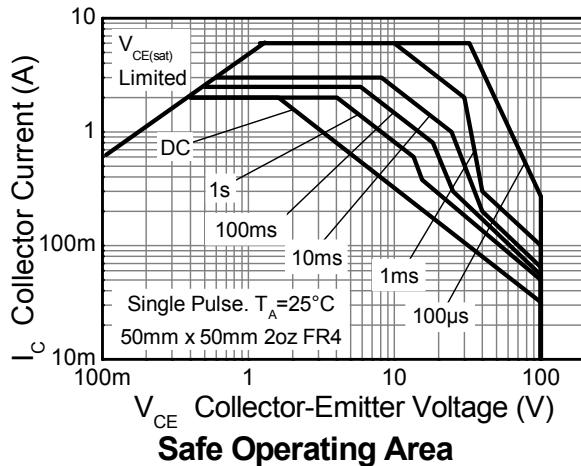
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	3.2	W
		1.7	
		0.74	
Thermal Resistance, Junction to Ambient Air	R _{θJA}	39	°C/W
		75	
		169	
Thermal Resistance, Junction to Leads	R _{θJL}	9	
Operating and Storage Temperature Range	T _J , T _{TSG}	-55 to +150	°C

ESD Ratings (Note 9)

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 with the exposed collector pad on 50mm x 50mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 - 6. Same as note (5), except mounted on 25mm x 25mm 1oz copper.
 - 7. Same as note (5), except mounted on minimum recommended pad (MRP) layout.
 - 8. Thermal resistance from junction to solder-point (on the exposed collector pad).
 - 9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

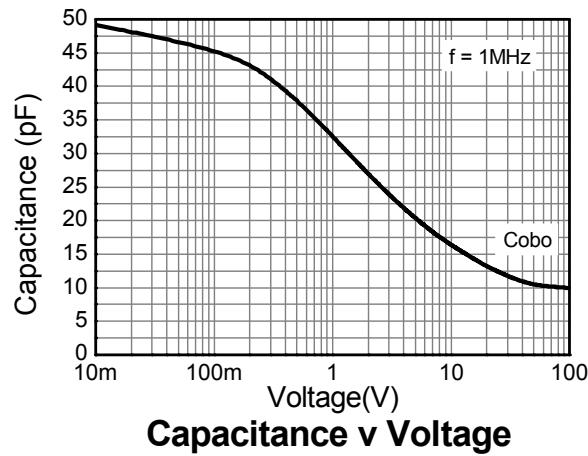
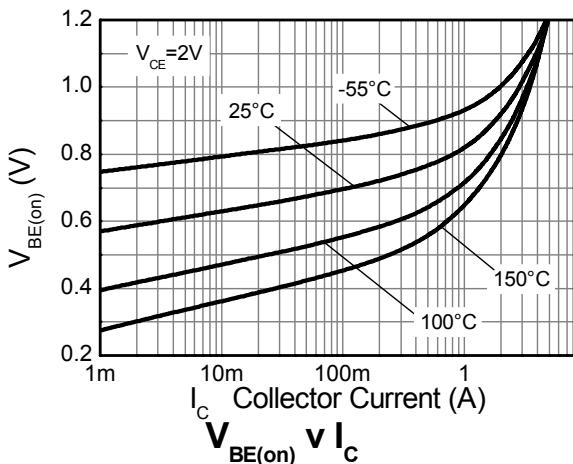
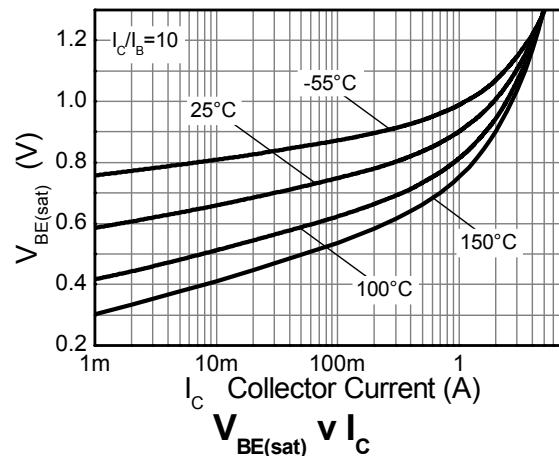
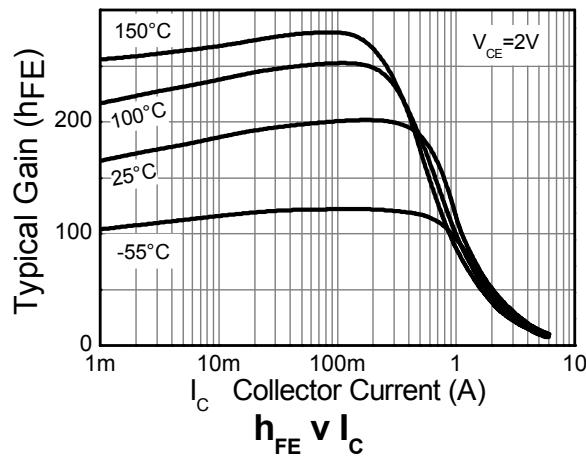
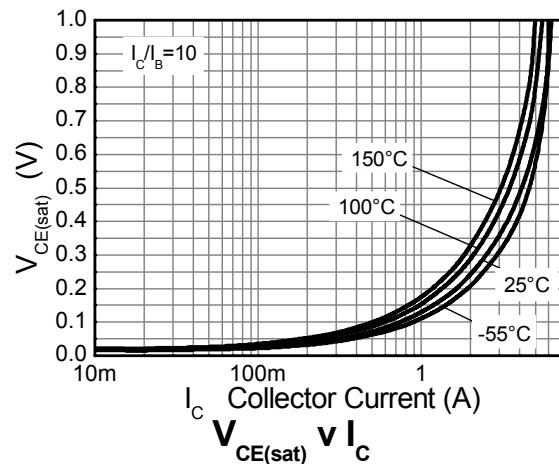
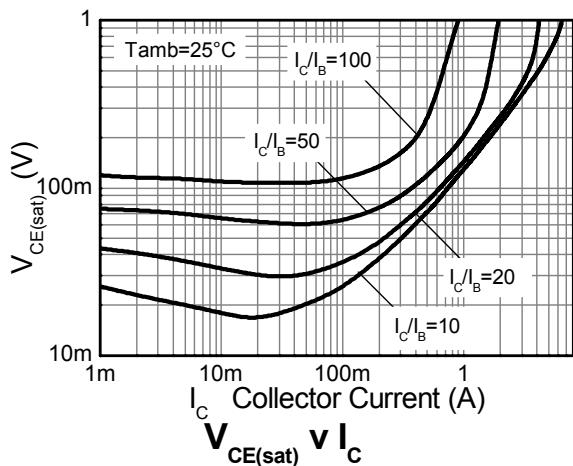


Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	120	—	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CEO}	100	—	—	V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	5	—	—	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	—	0.1 10	μA	$V_{\text{CB}} = 100\text{V}$ $V_{\text{CB}} = 100\text{V}$, $T_{\text{AMB}} = +100^\circ\text{C}$
Emitter Cutoff Current	I_{EBO}	—	—	0.1	μA	$V_{\text{EB}} = 4\text{V}$
Collector-Emitter Saturation Voltage (Note 10)	$V_{\text{CE}(\text{sat})}$	—	0.13 0.23	0.3 0.5	V	$I_C = 1\text{A}$, $I_B = 100\text{mA}$ $I_C = 2\text{A}$, $I_B = 200\text{mA}$
Base-Emitter Saturation Voltage (Note 10)	$V_{\text{BE}(\text{sat})}$	—	0.9	1.25	V	$I_C = 1\text{A}$, $I_B = 100\text{mA}$
Base-Emitter Turn-On Voltage (Note 10)	$V_{\text{BE}(\text{on})}$	—	0.8	1.00	V	$I_C = 1\text{A}$, $V_{\text{CE}} = 2\text{V}$
DC Current Gain (Note 10)	h_{FE}	70 100 55 25	200 200 110 55	— 300 — —	—	$I_C = 50\text{mA}$, $V_{\text{CE}} = 2\text{V}$ $I_C = 500\text{mA}$, $V_{\text{CE}} = 2\text{V}$ $I_C = 1\text{A}$, $V_{\text{CE}} = 2\text{V}$ $I_C = 2\text{A}$, $V_{\text{CE}} = 2\text{V}$
Transition Frequency	f_T	140	175	—	MHz	$I_C = 100\text{mA}$, $V_{\text{CE}} = 5\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}	—	—	30	pF	$V_{\text{CB}} = 10\text{A}$, $f = 1\text{MHz}$
Switching Times	t_{on} t_{off}	—	80 1200	—	ns ns	$I_C = 500\text{mA}$, $V_{\text{CC}} = 10\text{V}$, $I_{B1} = I_{B2} = 50\text{mA}$

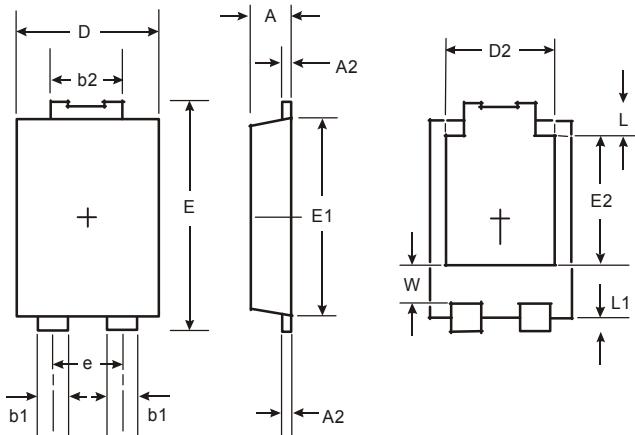
Note: 10. Pulse Test: Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2.0\%$.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

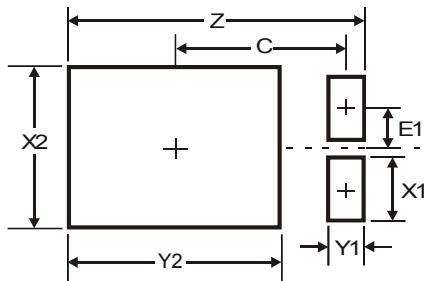
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



PowerDI®5		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
All Dimensions in mm		

Suggested Pad Layout

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



Dimensions	Value (in mm)
Z	6.6
X1	1.4
X2	3.6
Y1	0.8
Y2	4.7
C	3.87
E1	0.9

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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