


Features

- $BV_{CEO} > -100V$
- Small Form Factor Thermally Efficient Package. Enables Higher Density End Products
- $I_C = -2A$ High Continuous Current
- $I_{CM} = -6A$ Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)} < -250mV @ -1A$
- Complementary NPN Type: DXTN07100BFG
- Rated to $+175^{\circ}C$ —Ideal For High Temperature Environment
- Wettable Flank For Improved Optical Inspection
- **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**

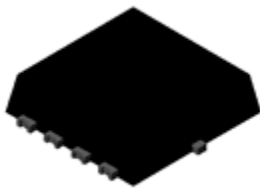
Mechanical Data

- Case: PowerDI@3333-8
- Case Material: Molded Plastic. “Green” Molding Compound
UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish—Matte Tin Solderable per MIL-STD-202, Method 208 
- Weight: 0.03 grams (Approximate)

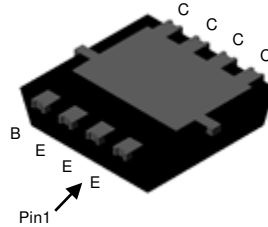
Applications

- High Side Switch
- MOSFET or IGBT Gate Driving

PowerDI3333-8 (SWP) (Type UX)

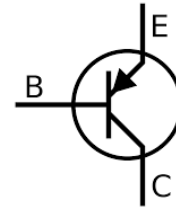


Top View



Bottom View

Equivalent Circuit



Device Symbol

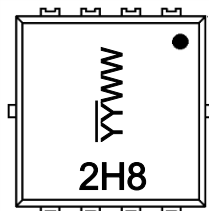
Ordering Information (Notes 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DXTP07100BFG-7	AEC-Q101	2H8	7	12	2000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> 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

PowerDI3333-8 (SWP) (Type UX)



2H8= Product Type Marking Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 18 = 2018)
WW = Week Code (01 to 53)

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

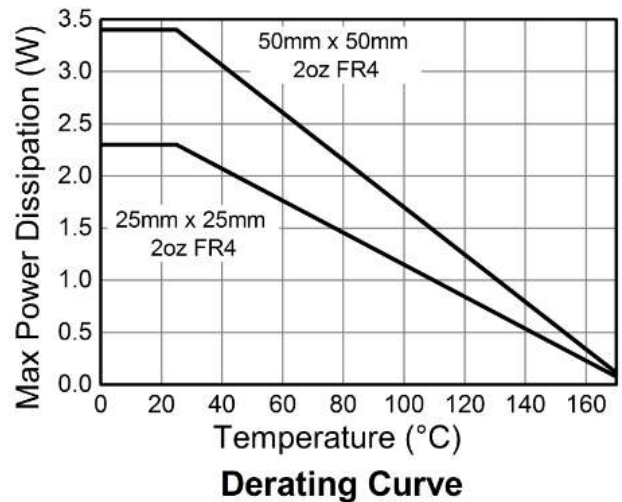
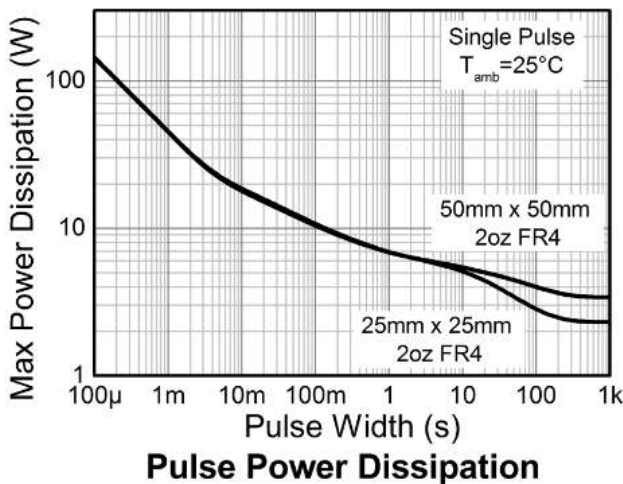
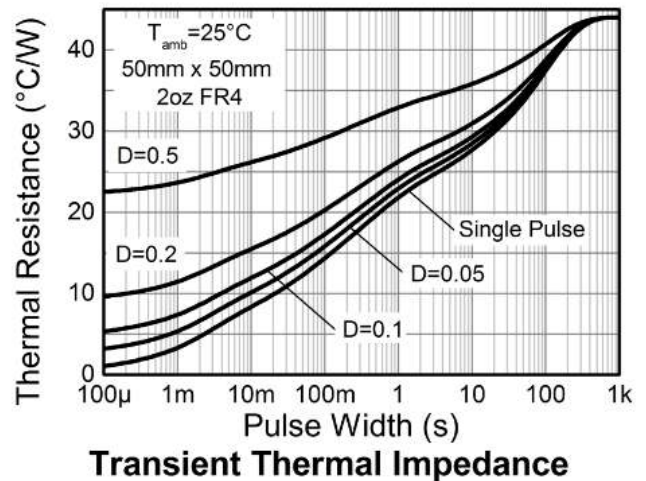
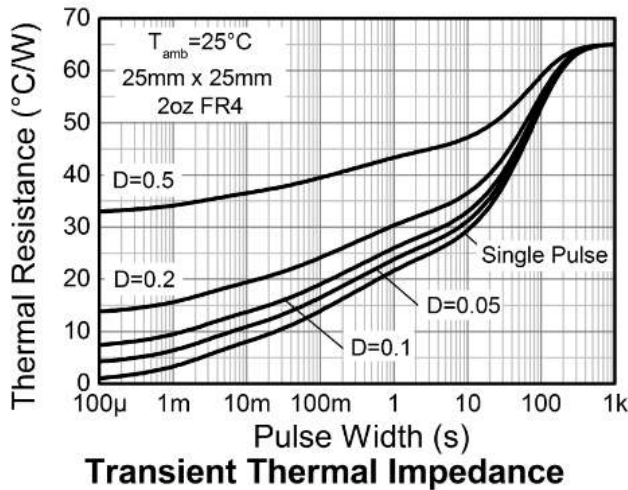
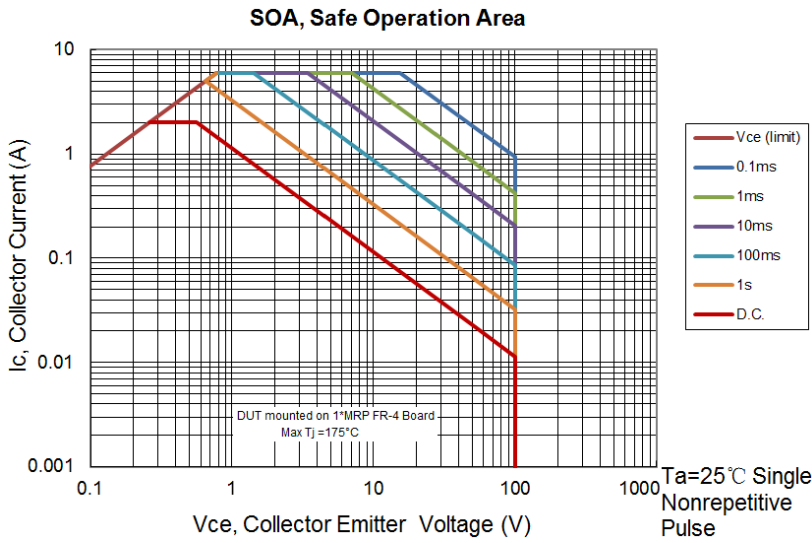
Characteristic	Symbol	Value	Unit	
Power Dissipation	P_D	(Note 5)	0.9	W
		(Note 6)	2.1	W
		(Note 7)	3.1	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	(Note 5)	140	$^\circ\text{C/W}$
		(Note 6)	65	$^\circ\text{C/W}$
		(Note 7)	44	$^\circ\text{C/W}$
Thermal Resistance, Junction to Leads (Note 8)	$R_{\theta JL}$	8.5	$^\circ\text{C/W}$	
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$	

ESD Ratings (Note 9)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge—Human Body Model	ESD HBM	4000	V	3A
Electrostatic Discharge—Machine Model	ESD MM	400	V	C

- Notes:
5. For a device mounted with the collector tab on MRP 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 25mm × 25mm 2oz copper.
 7. Same as Note 5, except the device is mounted on 50mm × 50mm 2oz copper.
 8. Thermal resistance from junction to solder-point (at the collector tab).
 9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

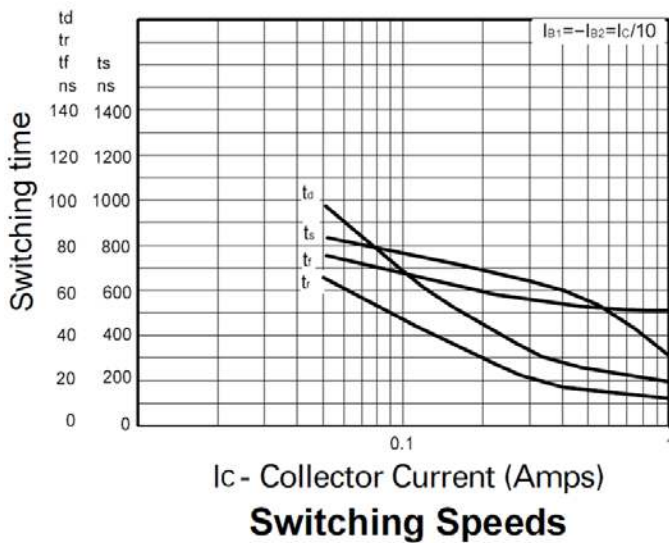
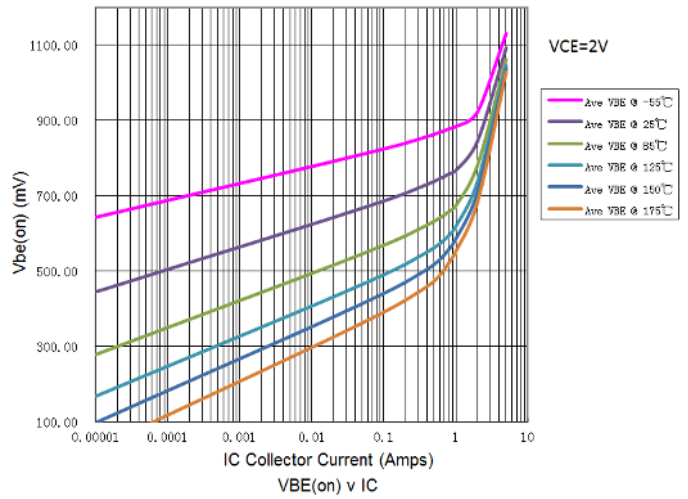
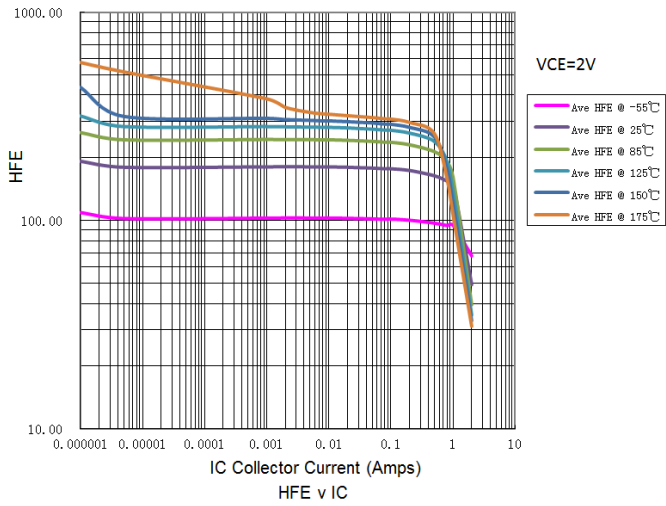
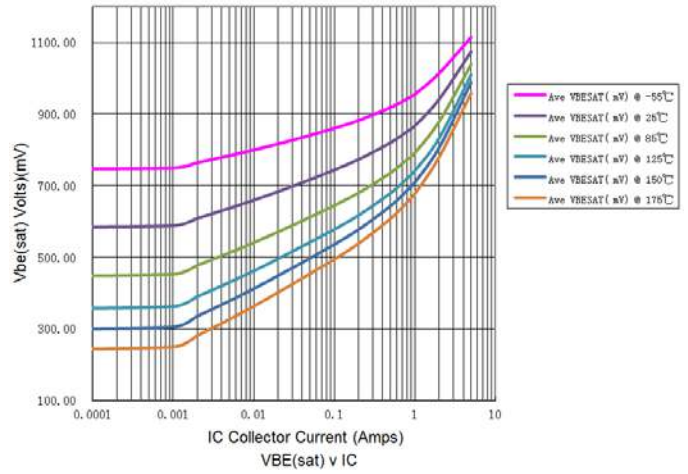
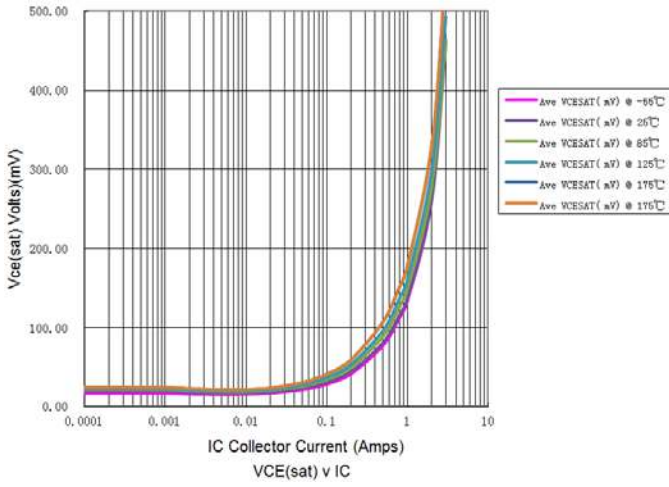


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-120	-170	—	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 10)	BV _{CEO}	-100	-124	—	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.4	—	V	I _E = -100μA
Collector Cut-Off Current	I _{CBO}	—	—	-50	nA	V _{CB} = -100V
		—	—	-10	μA	V _{CB} = -100V, T _A = +125°C
Emitter Cut-Off Current	I _{EBO}	—	—	-20	nA	V _{EB} = -6V
Collector-Emitter Saturation Voltage (Note 10)	V _{CE(sat)}	—	-137	-250	mV	I _C = -1A, I _B = -100mA
		—	-260	-500	mV	I _C = -2A, I _B = -200mA
Base-Emitter Saturation Voltage (Note 10)	V _{BE(sat)}	—	-0.87	-1	V	I _C = -1A, I _B = -100mA
Base-Emitter Turn-On Voltage (Note 10)	V _{BE(on)}	—	-0.78	-0.95	V	I _C = -1A, V _{CE} = -2V
DC Current Gain (Note 10)	h _{FE}	70	177	—	—	I _C = -50mA, V _{CE} = -2V
		100	161	300	—	I _C = -500mA, V _{CE} = -2V
		55	146	—	—	I _C = -1A, V _{CE} = -2V
		25	53	—	—	I _C = -2A, V _{CE} = -2V
Current Gain-Bandwidth Product	f _T	100	140	—	MHz	V _{CE} = -5V, I _C = -100mA f = 100MHz
Turn-On Time	t _{on}	—	40	—	ns	V _{CC} = -10V, I _C = -500mA
Turn-Off Time	t _{off}	—	600	—	ns	I _{B1} = -I _{B2} = -50mA
Output Capacitance	C _{obo}	—	—	30	pF	V _{CB} = -10V, f = 1MHz

Note: 10. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

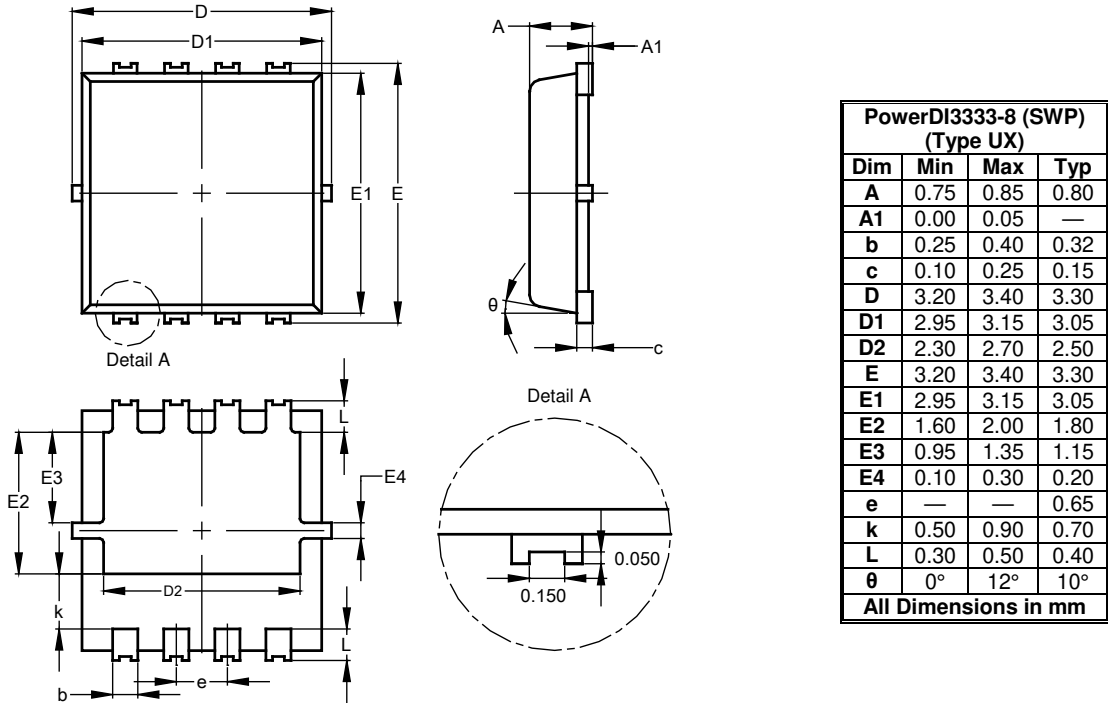
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



Package Outline Dimensions

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

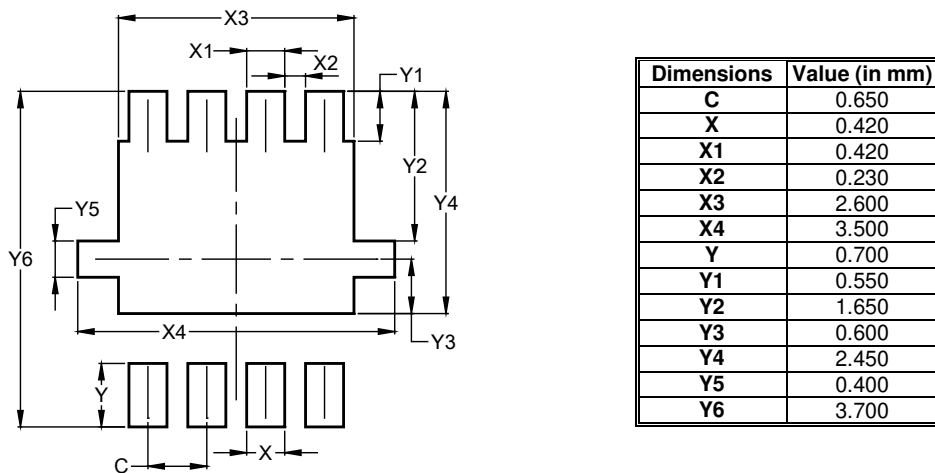
PowerDI3333-8 (SWP) (Type UX)



Suggested Pad Layout

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

PowerDI3333-8 (SWP) (Type UX)



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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