

Features

- $BV_{CEO} > 60V$
- Small Form Factor Thermally Efficient Package Enables Higher Density End Products
- $I_C = 3A$ High Continuous Current
- $I_{CM} = 6A$ Peak Pulse Current
- Low Saturation Voltage $V_{CE(SAT)} < 250mV @ 1A$
- Complementary PNP Type: DXTP07060BFG
- 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)**

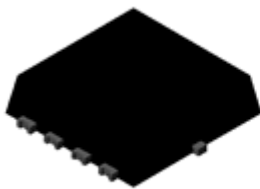
Mechanical Data

- 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)

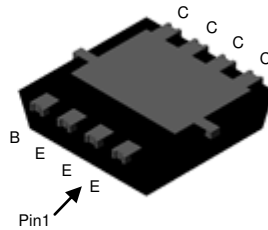
Applications

- Load Switch
- Linear Regulator

PowerDI3333-8 (SWP) (Type UX)

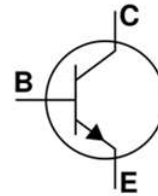


Top View



Bottom View

Equivalent Circuit



Device Symbol

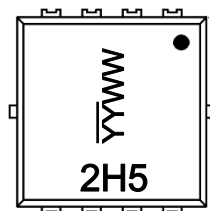
Ordering Information (Note 4)

| Part Number | Marking | Reel Size (inches) | Tape Width (mm) | Quantity per Reel |
|----------------|---------|--------------------|-----------------|-------------------|
| DXTN07060BFG-7 | 2H5 | 7 | 12 | 2,000 |

- 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information

PowerDI3333-8 (SWP) (Type UX)



2H5= 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°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|------------------------------|------------------|-------|------|
| Collector-Base Voltage | V _{CBO} | 80 | V |
| Collector-Emitter Voltage | V _{CEO} | 60 | V |
| Emitter-Base Voltage | V _{EBO} | 7 | V |
| Continuous Collector Current | I _C | 3 | A |
| Peak Pulse Current | I _{CM} | 6 | A |

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

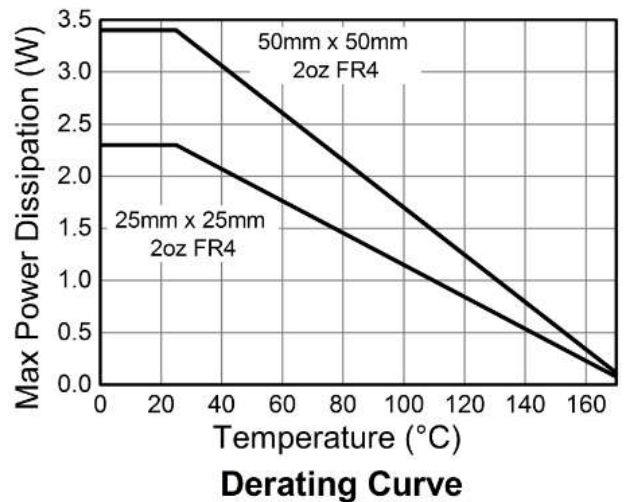
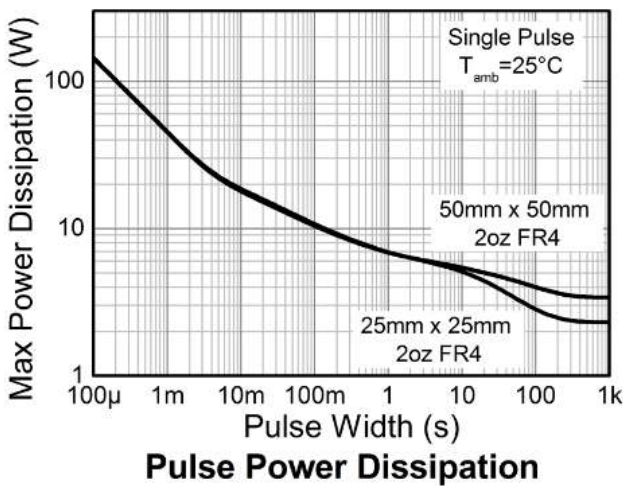
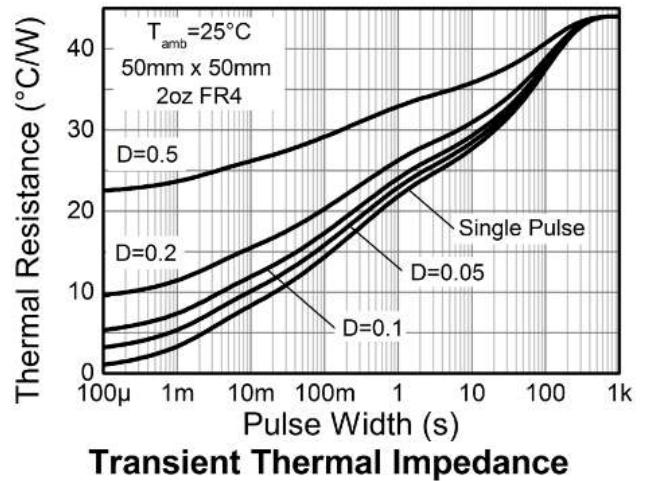
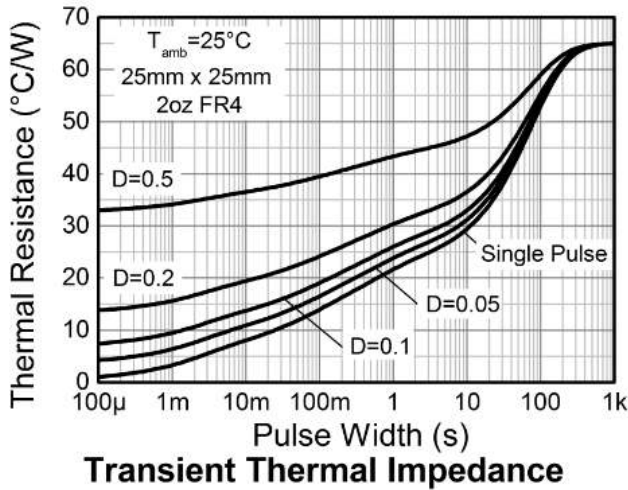
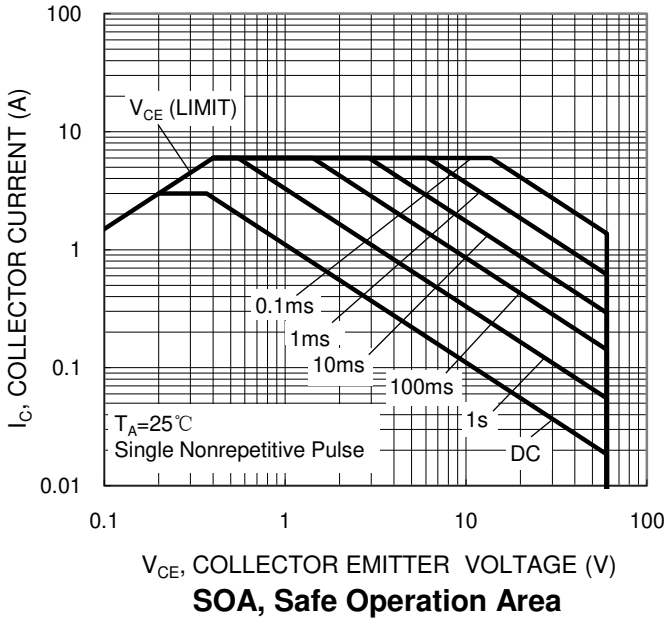
| Characteristic | Symbol | Value | Unit | |
|--|-----------------------------------|-------------|------|------|
| Power Dissipation | P _D | (Note 5) | 0.9 | W |
| | | (Note 6) | 2.1 | W |
| | | (Note 7) | 3.1 | W |
| Thermal Resistance, Junction to Ambient | R _{θJA} | (Note 5) | 140 | °C/W |
| | | (Note 6) | 65 | °C/W |
| | | (Note 7) | 44 | °C/W |
| Thermal Resistance, Junction to Leads (Note 8) | R _{θJL} | 8.5 | °C/W | |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +175 | °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 collector tab on MRP FR-4 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 x 25mm 2oz copper.
 7. Same as Note 5, except the device is mounted on 50mm x 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

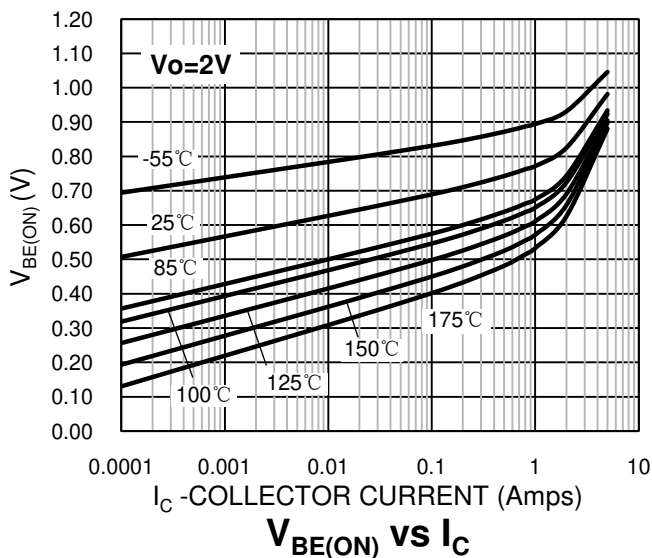
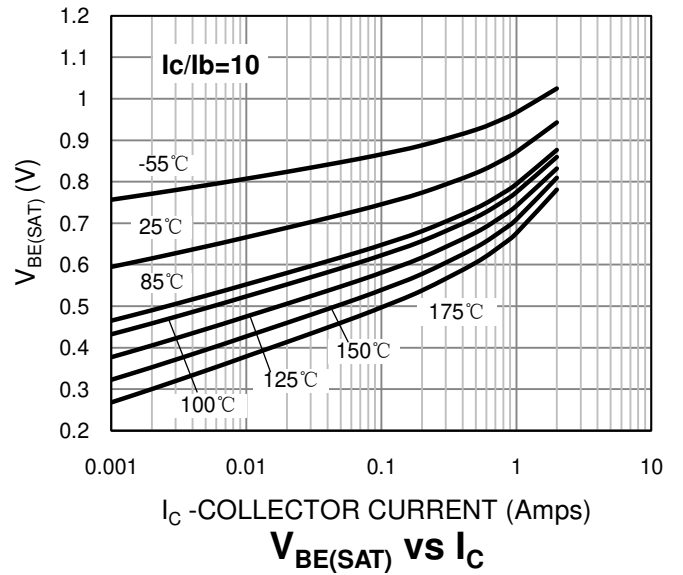
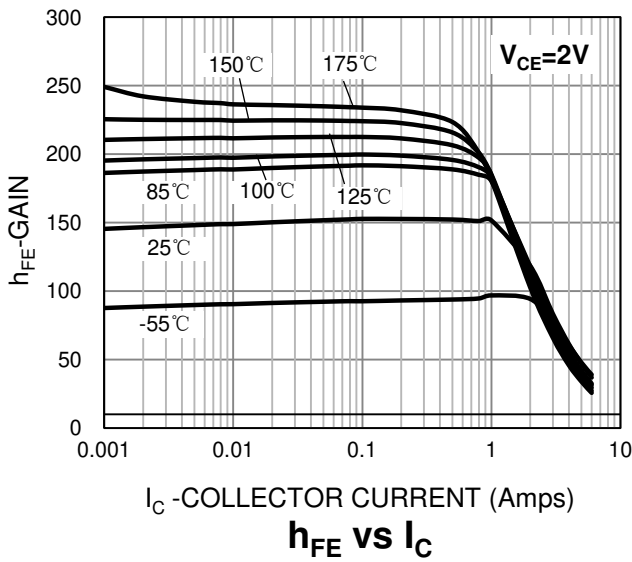
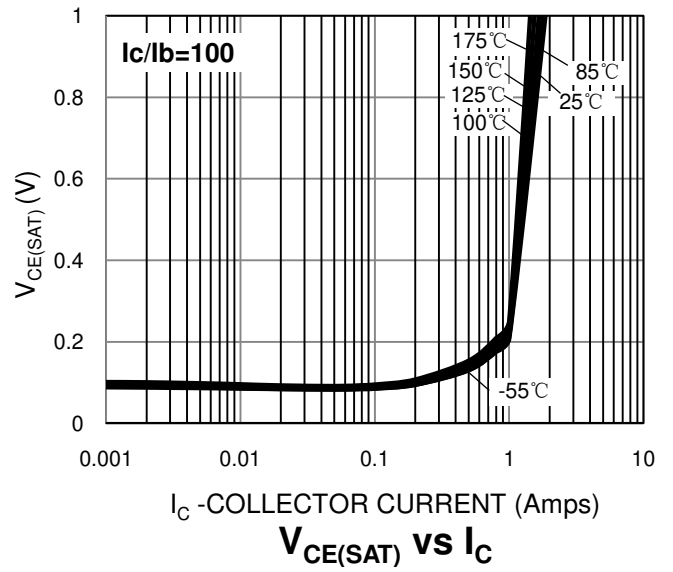
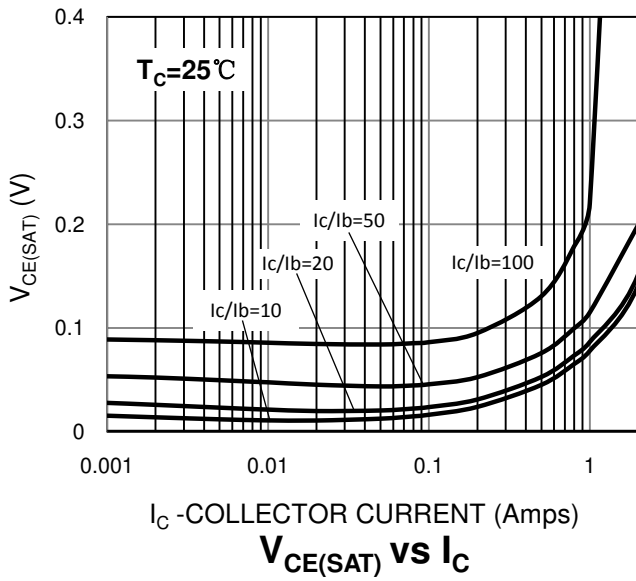


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|----------------------|-----|------|------|------|---|
| Collector-Base Breakdown Voltage | BV _{CBO} | 80 | 195 | — | V | I _C = 100μA |
| Collector-Emitter Breakdown Voltage (Note 10) | BV _{CEO} | 60 | 80 | — | V | I _C = 10mA |
| Emitter-Base Breakdown Voltage | BV _{EBO} | 7 | 8.3 | — | V | I _E = 100μA |
| Collector Cut-Off Current | I _{CBO} | — | — | 20 | nA | V _{CB} = 60V |
| | | — | — | 10 | μA | V _{CB} = 60V, T _A = +125°C |
| Emitter Cut-Off Current | I _{EBO} | — | — | 20 | nA | V _{EB} = 6V |
| Collector-Emitter Saturation Voltage (Note 10) | V _{CE(SAT)} | — | 78 | 250 | mV | I _C = 1A, I _B = 100mA |
| | | — | 200 | 500 | | I _C = 3A, I _B = 300mA |
| Base-Emitter Saturation Voltage (Note 10) | V _{BE(SAT)} | — | 0.86 | 1.1 | V | I _C = 1A, I _B = 100mA |
| Base-Emitter Turn-On Voltage (Note 10) | V _{BE(ON)} | — | 0.79 | 0.95 | V | I _C = 1A, V _{CE} = 2V |
| DC Current Gain (Note 10) | h _{FE} | 70 | 152 | — | — | I _C = 50mA, V _{CE} = 2V |
| | | 100 | 150 | 300 | | I _C = 500mA, V _{CE} = 2V |
| | | 80 | 147 | — | | I _C = 1A, V _{CE} = 2V |
| | | 40 | 117 | — | | I _C = 2A, V _{CE} = 2V |
| Current Gain-Bandwidth Product | f _T | 140 | 175 | — | MHz | V _{CE} = 5V, I _C = 100mA, f = 100MHz |
| Switching Times | t _{ON} | — | 45 | — | ns | I _C = 500mA, V _{CC} = 10V, I _{B1} = - I _{B2} = 50mA |
| | t _{OFF} | — | 800 | — | | |
| Output Capacitance | C _{OBO} | — | — | 30 | pF | V _{CB} = 10V, f = 1MHz |

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

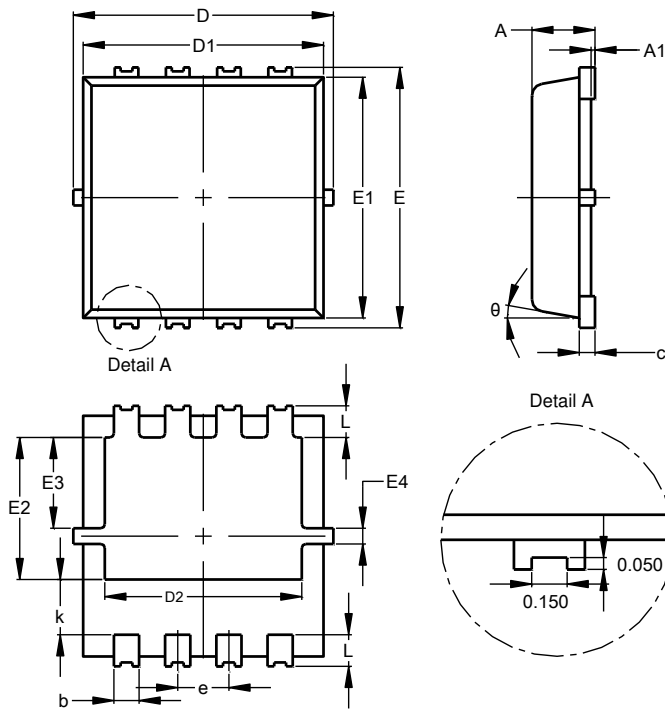
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

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

PowerDI3333-8 (SWP) (Type UX)

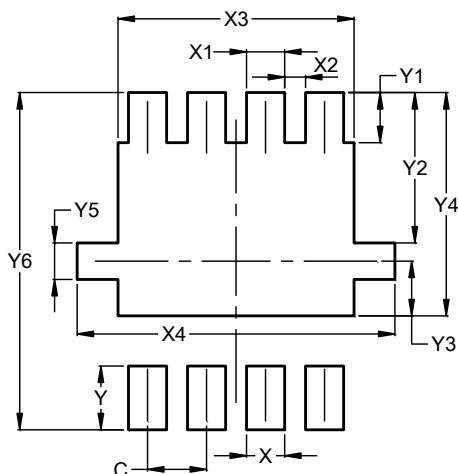


| PowerDI3333-8 (SWP) (Type UX) | | | |
|----------------------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.75 | 0.85 | 0.80 |
| A1 | 0.00 | 0.05 | -- |
| b | 0.25 | 0.40 | 0.32 |
| c | 0.10 | 0.25 | 0.15 |
| D | 3.20 | 3.40 | 3.30 |
| D1 | 2.95 | 3.15 | 3.05 |
| D2 | 2.30 | 2.70 | 2.50 |
| E | 3.20 | 3.40 | 3.30 |
| E1 | 2.95 | 3.15 | 3.05 |
| E2 | 1.60 | 2.00 | 1.80 |
| E3 | 0.95 | 1.35 | 1.15 |
| E4 | 0.10 | 0.30 | 0.20 |
| e | -- | -- | 0.65 |
| k | 0.50 | 0.90 | 0.70 |
| L | 0.30 | 0.50 | 0.40 |
| θ | 0° | 12° | 10° |
| All Dimensions in mm | | | |

Suggested Pad Layout

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

PowerDI3333-8 (SWP) (Type UX)



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.650 |
| X | 0.420 |
| X1 | 0.420 |
| X2 | 0.230 |
| X3 | 2.600 |
| X4 | 3.500 |
| Y | 0.700 |
| Y1 | 0.550 |
| Y2 | 1.650 |
| Y3 | 0.600 |
| Y4 | 2.450 |
| Y5 | 0.400 |
| Y6 | 3.700 |

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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