

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number:	DMTH8028LFVWQ-7
Manufacturer:	Diodes Incorporated
Package:	Please confirm with sales
Availability:	Please confirm with sales

Product Page:

<https://antrexco.com/product/details/diodes-incorporated/dmth8028lfvwq-7.html>

Request a Quote:

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Contact Information

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WhatsApp: +86-186-8066-5326

Website: <https://antrexco.com>

Quality & Trust

New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

Product Summary

BV _{DSS}	R _{DS(ON)} MAX	I _D MAX T _C = +25°C
80V	25mΩ @ V _{GS} = 10V	27A
	41mΩ @ V _{GS} = 4.5V	21A

Features and Benefits

- 100% Unclamped Inductive Switching (UIS) Test in Production – Ensures More Reliable and Robust End Application
- Small Form Factor Thermally Efficient Package Enables Higher Density End Products
- Wettable Flank for Improved Optical Inspection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**
- **The DMTH8028LFVWQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

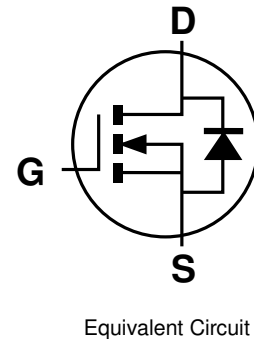
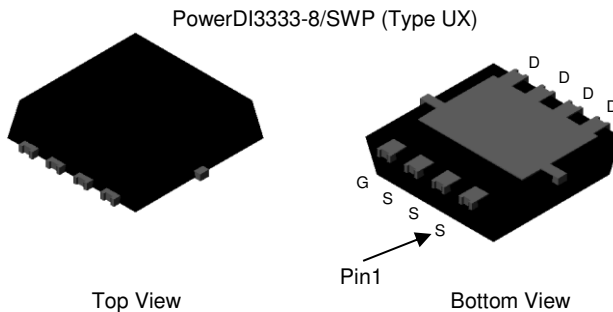
Description

This MOSFET is designed to meet the stringent requirements of automotive applications. It is qualified to AEC-Q101, supported by a PPAP, and is ideal for use in:

- Backlighting
- Power-management functions
- DC-DC converters

Mechanical Data

- Package: PowerDI[®]3333-8
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See Diagram
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.03 grams (Approximate)

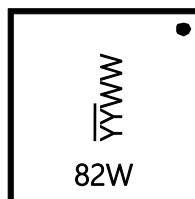


Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DMTH8028LFVWQ-7	PowerDI3333-8/SWP (Type UX)	2,000	Tape and Reel
DMTH8028LFVWQ-13	PowerDI3333-8/SWP (Type UX)	3,000	Tape and Reel

- 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



82W = Product Type Marking Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 23 = 2023)
WW = Week Code (01 to 53)

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	80	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current (Note 7) $V_{GS} = 10\text{V}$	I_D	27	A
		19	
Pulsed Drain Current (10 μs Pulse, Duty Cycle = 1%)	I_{DM}	108	A
Maximum Continuous Body Diode Forward Current (Note 7)	I_S	27	A
Pulsed Body Diode Forward Current	I_{SM}	108	A
Avalanche Current, $L = 0.3\text{mH}$ (Note 8)	I_{AS}	12.5	A
Avalanche Energy, $L = 0.3\text{mH}$ (Note 8)	E_{AS}	23.4	mJ

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

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P_D	1.5	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	98	$^\circ\text{C/W}$
Total Power Dissipation (Note 6)	P_D	3.5	W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	42	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case (Note 7)	$R_{\theta JC}$	4.0	
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 9)						
Drain-Source Breakdown Voltage	BV_{DSS}	80	—	—	V	$V_{GS} = 0\text{V}, I_D = 1\text{mA}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	$V_{DS} = 64\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 9)						
Gate Threshold Voltage	$V_{GS(TH)}$	1.3	—	2.5	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	17	25	m Ω	$V_{GS} = 10\text{V}, I_D = 5\text{A}$
		—	26	41		$V_{GS} = 4.5\text{V}, I_D = 4.5\text{A}$
Diode Forward Voltage	V_{SD}	—	0.8	1.2	V	$V_{GS} = 0\text{V}, I_S = 5\text{A}$
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C_{iss}	—	631	—	pF	$V_{DS} = 40\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	200	—		
Reverse Transfer Capacitance	C_{rss}	—	19.5	—		
Gate Resistance	R_g	—	1.1	—	Ω	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Total Gate Charge ($V_{GS} = 4.5\text{V}$)	Q_g	—	5.4	—	nC	$V_{DS} = 40\text{V}, I_D = 7.5\text{A}$
Total Gate Charge ($V_{GS} = 10\text{V}$)	Q_g	—	10.4	—		
Gate-Source Charge	Q_{gs}	—	1.8	—		
Gate-Drain Charge	Q_{gd}	—	2.4	—		
Turn-On Delay Time	$t_{D(ON)}$	—	7.1	—	ns	$V_{DD} = 40\text{V}, V_{GS} = 4.5\text{V}, R_G = 2.7\Omega, I_D = 10\text{A}$
Turn-On Rise Time	t_R	—	9.7	—		
Turn-Off Delay Time	$t_{D(OFF)}$	—	18.6	—		
Turn-Off Fall Time	t_F	—	8.6	—		
Body Diode Reverse Recovery Time	t_{RR}	—	28.5	—	ns	$I_F = 7.5\text{A}, di/dt = 100\text{A}/\mu\text{s}$
Body Diode Reverse Recovery Charge	Q_{RR}	—	21.7	—	nC	

- Notes:
- Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
 - Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1-inch square copper plate.
 - Thermal resistance from junction to soldering point (on the exposed drain pad).
 - I_{AS} and E_{AS} ratings are based on low frequency and duty cycles to keep $T_J = +25^\circ\text{C}$.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

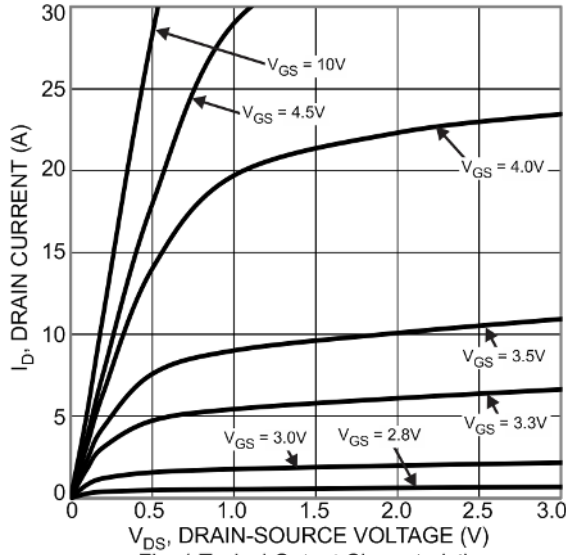


Fig. 1 Typical Output Characteristic

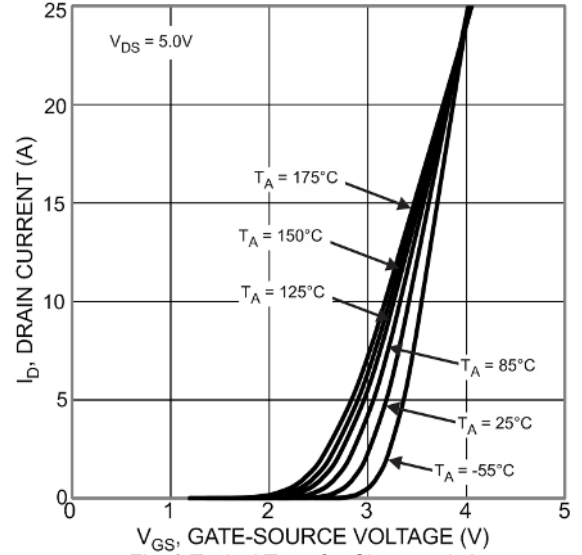


Fig. 2 Typical Transfer Characteristics

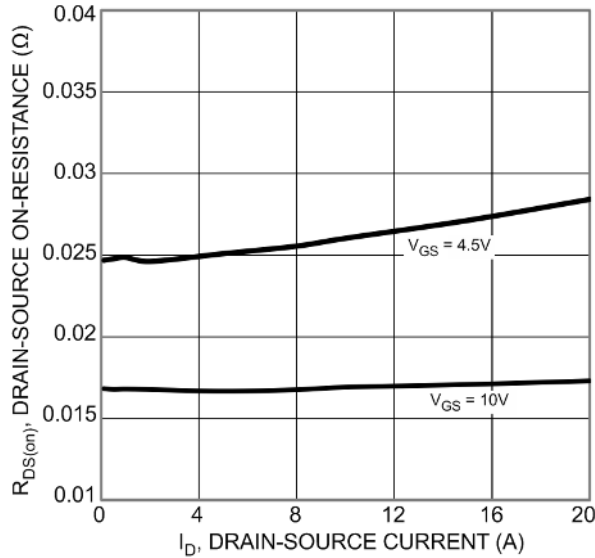


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

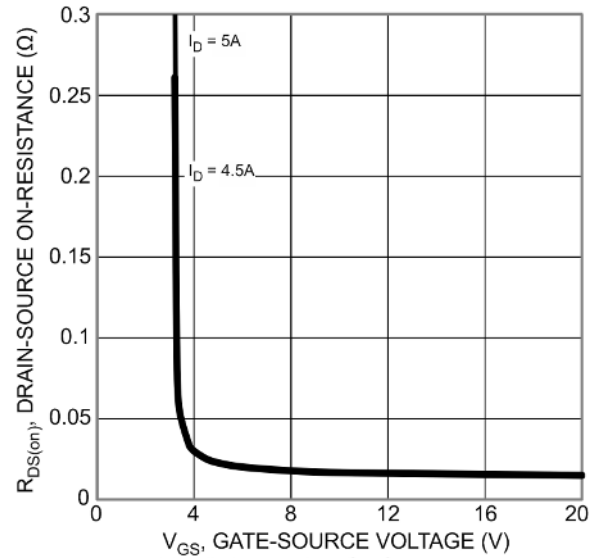


Fig. 4 Typical Transfer Characteristic

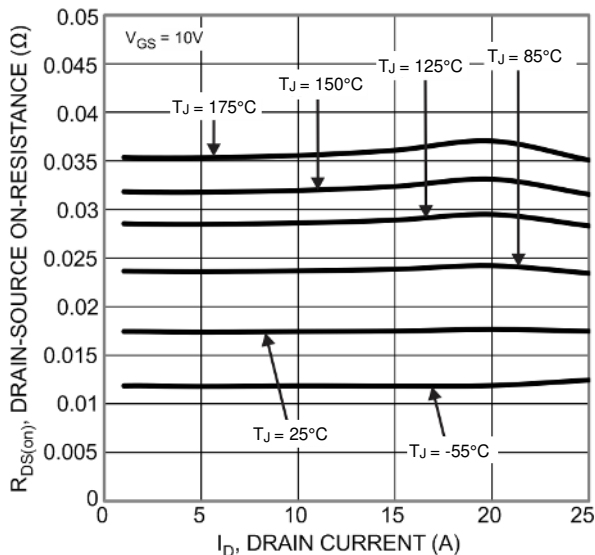


Fig. 5 Typical On-Resistance vs. Drain Current and Junction Temperature

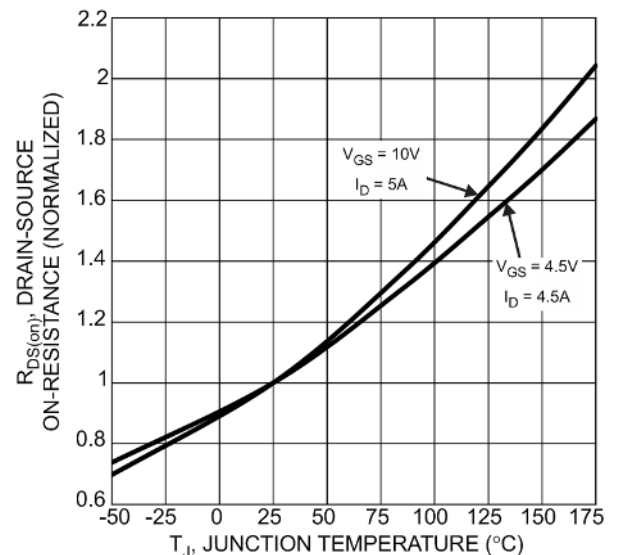


Fig. 6 On-Resistance Variation with Junction Temperature

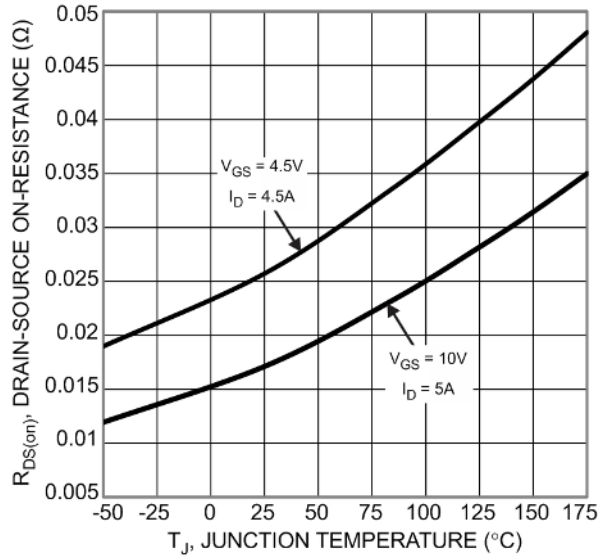


Fig. 7 On-Resistance Variation with Junction Temperature

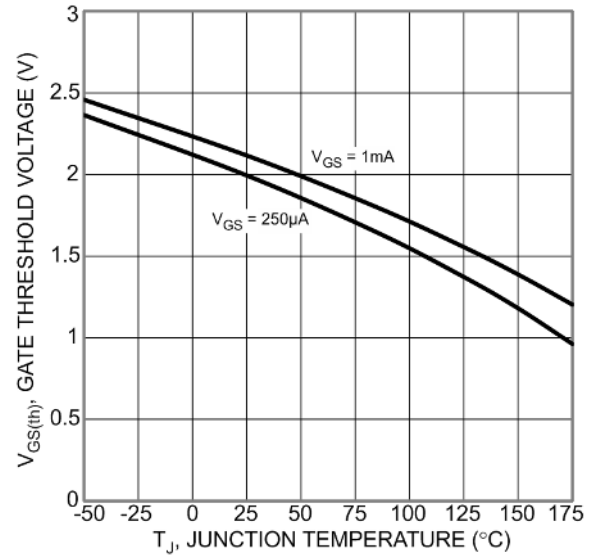


Fig. 8 Gate Threshold Variation vs Junction Temperature

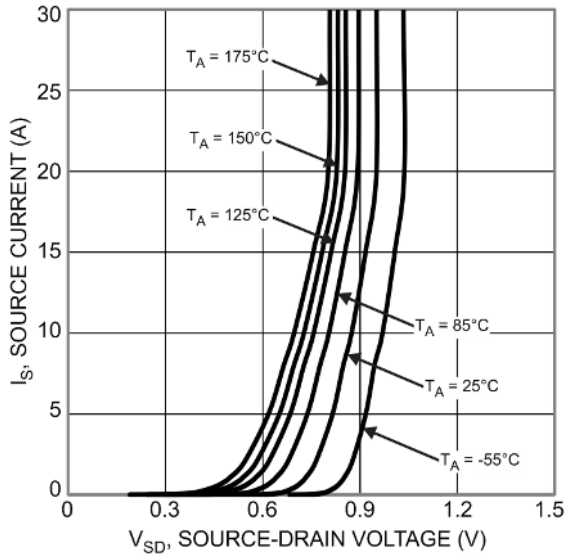


Fig. 9 Diode Forward Voltage vs Current

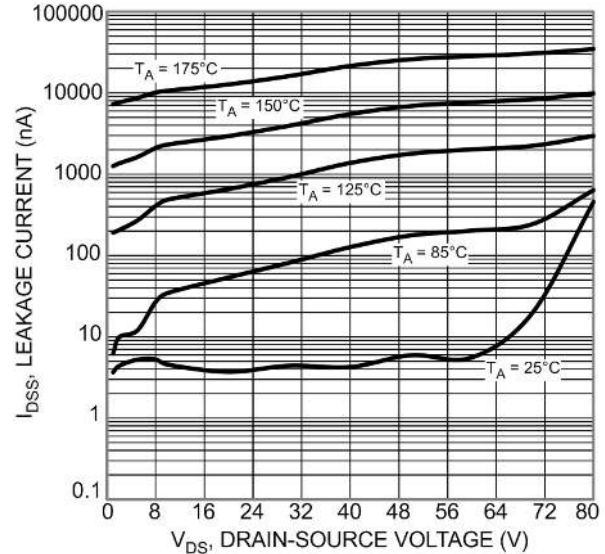


Fig. 10 Typical Drain-Source Leakage Current vs. Voltage

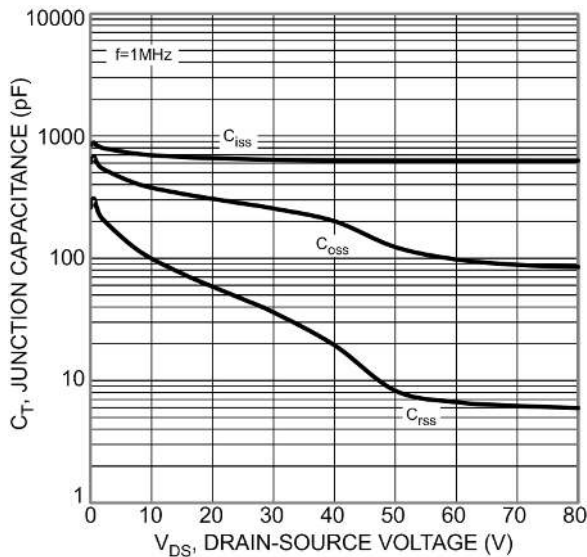


Fig. 11 Typical Junction Capacitance

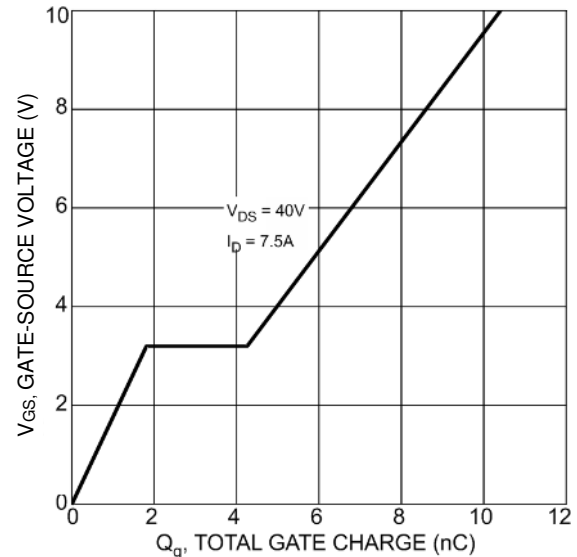


Fig. 12 Gate Charge

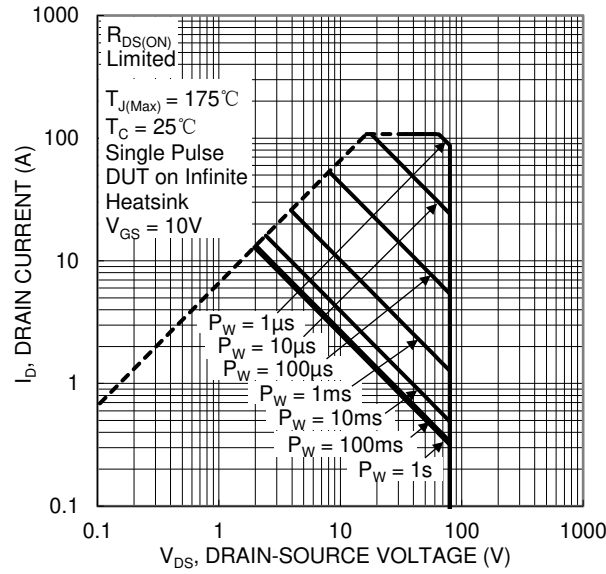


Fig. 13 SOA, Safe Operation Area

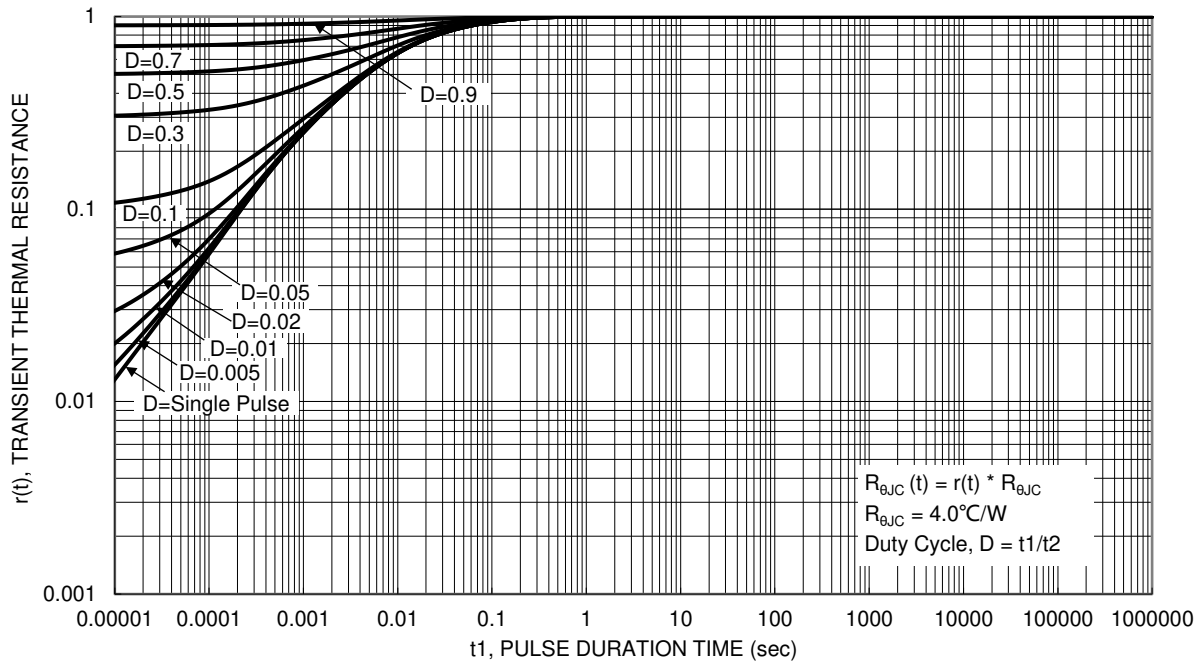
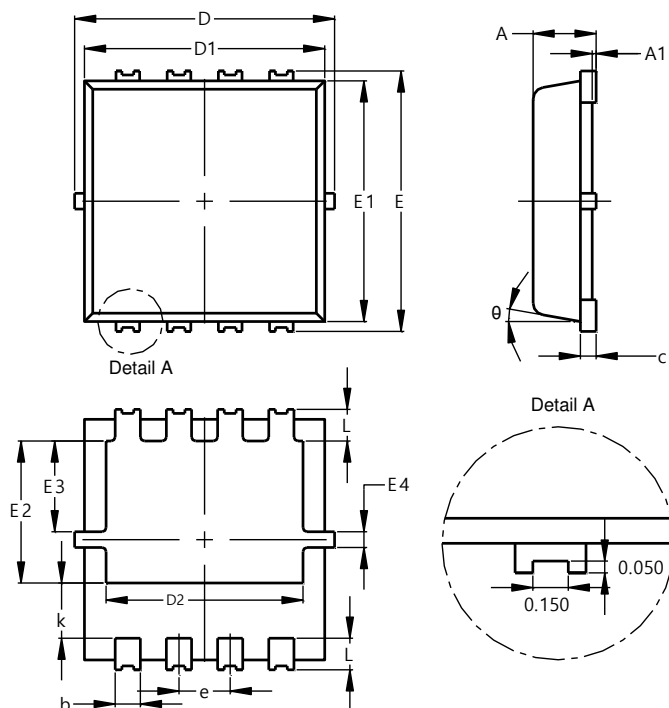


Fig. 14 Transient Thermal Resistance

Package Outline Dimensions

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

PowerDI3333-8/SWP (Type UX)

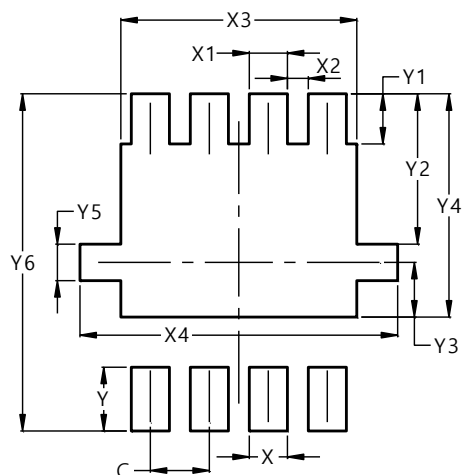


PowerDI3333-8/SWP (Type UX)			
Dim	Min	Max	Typ
A	0.75	0.85	0.80
A1	0.00	0.05	--
b	0.25	0.40	0.32
c	0.10	0.25	0.15
D	3.20	3.40	3.30
D1	2.95	3.15	3.05
D2	2.30	2.70	2.50
E	3.20	3.40	3.30
E1	2.95	3.15	3.05
E2	1.60	2.00	1.80
E3	0.95	1.35	1.15
E4	0.10	0.30	0.20
e	--	--	0.65
k	0.50	0.90	0.70
L	0.30	0.50	0.40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

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