

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number:	DMTH10H1M7STLW-13
Manufacturer:	Diodes Incorporated
Package:	Please confirm with sales
Availability:	Please confirm with sales

Product Page:

<https://antrexco.com/product/details/diodes-incorporated/dmth10h1m7stlw-13.html>

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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 T _c = +25°C
100V	1.85mΩ @ V _{GS} = 10V	250A

Description and Applications

This new generation N-Channel enhancement mode MOSFET is designed to minimize R_{DS(ON)} yet maintain superior switching performance. This device is ideal for use in notebook battery power management and load switch.

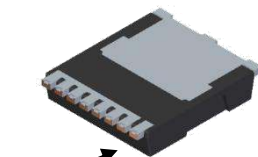
Applications

- Motor controls
- DC-DC converters
- Power managements

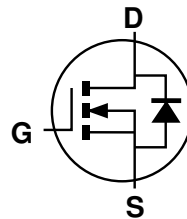
POWERDI1012-8



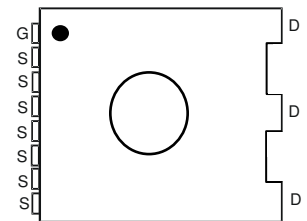
Top View



Pin1
Bottom View



Internal Schematic



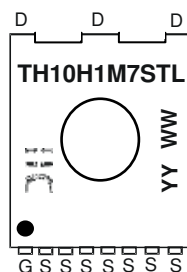
Top View
Pin Configuration

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DMTH10H1M7STLW-13	POWERDI1012-8	1,500	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 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



PowerDI1012-8

J = Manufacturer's Marking
 TH10H1M7STL = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 25 = 2025)
 WW = Week Code (01 to 53)

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	100	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current (Note 6) V _{GS} = 10V	I _D	T _C = +25°C 250	A
		T _C = +100°C 176	
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)	I _{DM}	1000	A
Maximum Continuous Body Diode Forward Current (Note 6)	I _S	250	A
Pulsed Body Diode Forward Current (10µs Pulse, Duty Cycle = 1%)	I _{SM}	1000	A
Avalanche Current, L = 0.3mH	I _{AS}	73	A
Avalanche Energy, L = 0.3mH	E _{AS}	799.4	mJ

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	6	W
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	24	°C/W
Total Power Dissipation (Note 6)	P _D	T _C = +25°C 250	W
Thermal Resistance, Junction to Case (Note 6)		R _{θJC}	0.6
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +175	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	100	—	—	V	V _{GS} = 0V, I _D = 1mA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	µA	V _{DS} = 80V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	2	—	4	V	V _{DS} = V _{GS} , I _D = 250µA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	1.4	1.85	mΩ	V _{GS} = 10V, I _D = 30A
Diode Forward Voltage	V _{SD}	—	0.8	1.2	V	V _{GS} = 0V, I _S = 30A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	9871	—	pF	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz
Output Capacitance	C _{oss}	—	3019	—		
Reverse Transfer Capacitance	C _{rss}	—	58	—		
Gate Resistance	R _g	—	2.5	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	—	147	—	nC	V _{DD} = 50V, I _D = 30A, V _{GS} = 10V
Gate-Source Charge	Q _{gs}	—	43	—		
Gate-Drain Charge	Q _{gd}	—	32	—		
Turn-On Delay Time	t _{D(ON)}	—	29	—	ns	V _{DD} = 50V, V _{GS} = 10V, I _D = 30A, R _g = 4.7Ω
Turn-On Rise Time	t _r	—	64	—		
Turn-Off Delay Time	t _{D(OFF)}	—	108	—		
Turn-Off Fall Time	t _f	—	69	—		
Reverse-Recovery Time	t _{RR}	—	91	—	ns	I _F = 25A, di/dt = 100A/µs
Reverse-Recovery Charge	Q _{RR}	—	270	—	nC	

- Notes:
5. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1 inch square copper plate.
 6. Thermal resistance from junction to soldering point (on the exposed drain pad).
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to product testing.

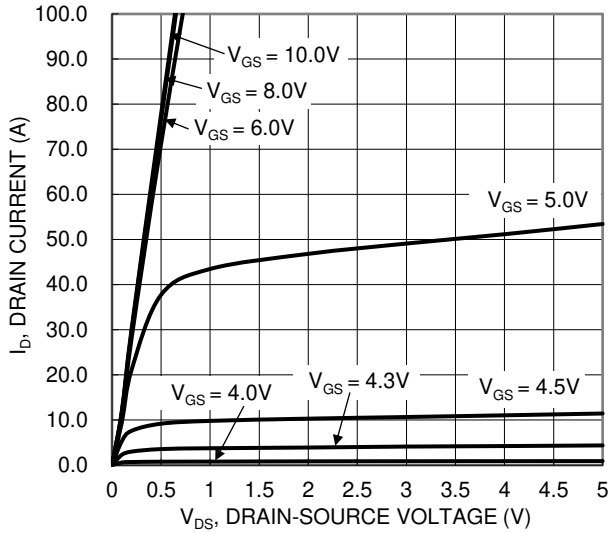


Figure 1. Typical Output Characteristic

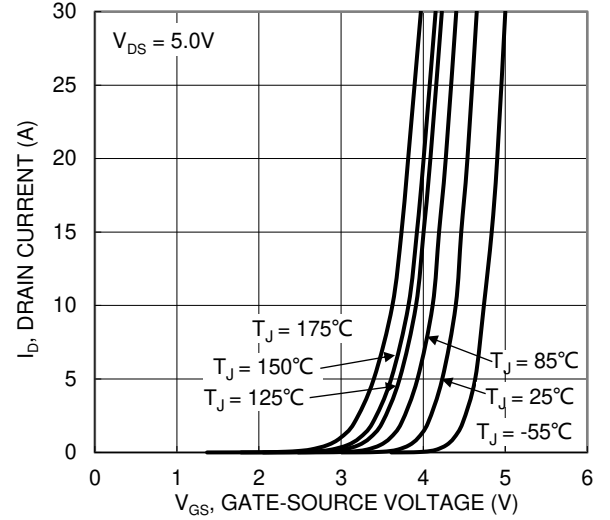


Figure 2. Typical Transfer Characteristic

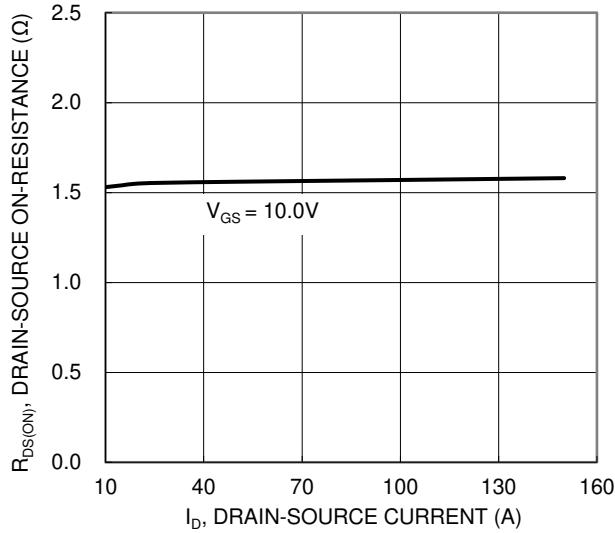


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

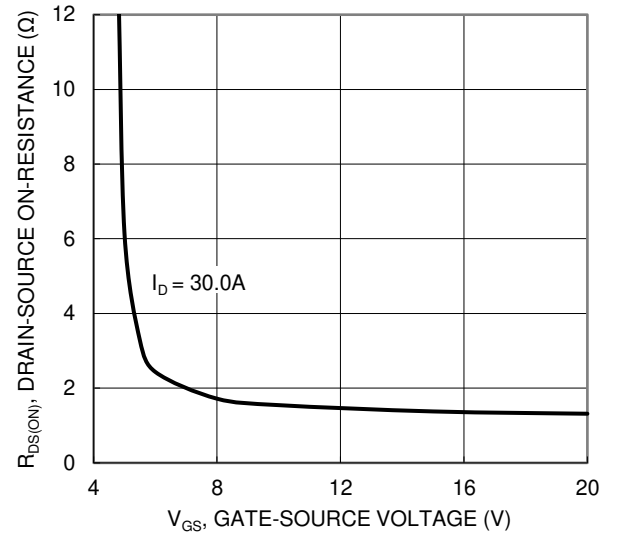


Figure 4. Typical Transfer Characteristic

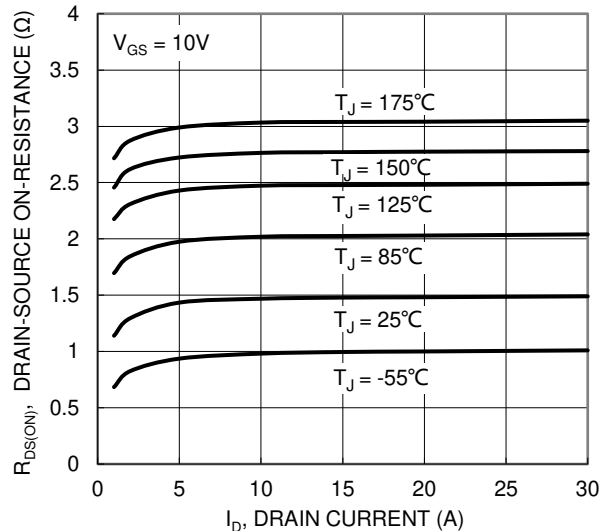


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

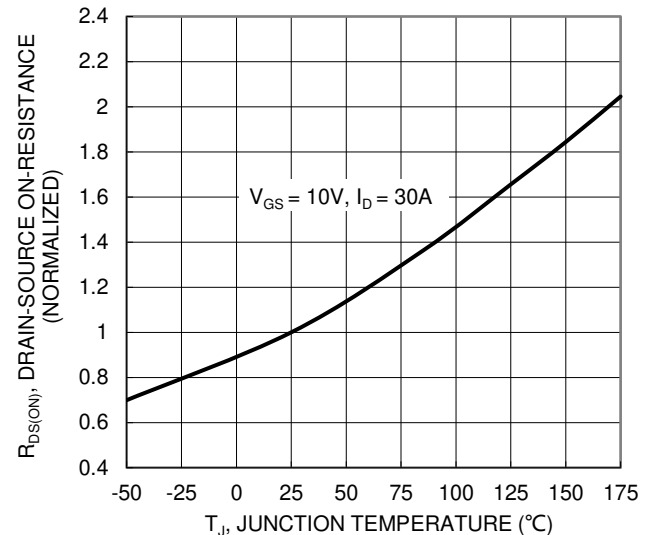
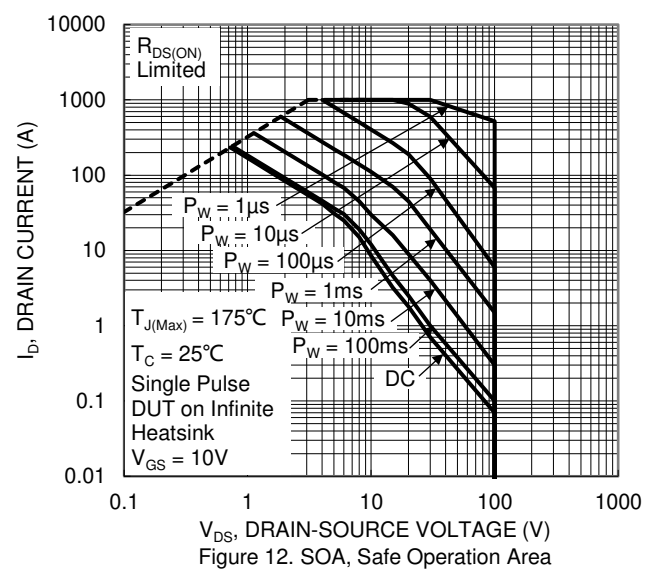
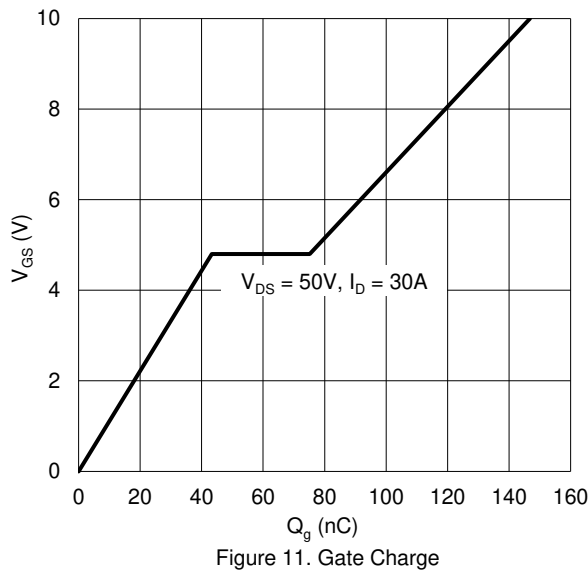
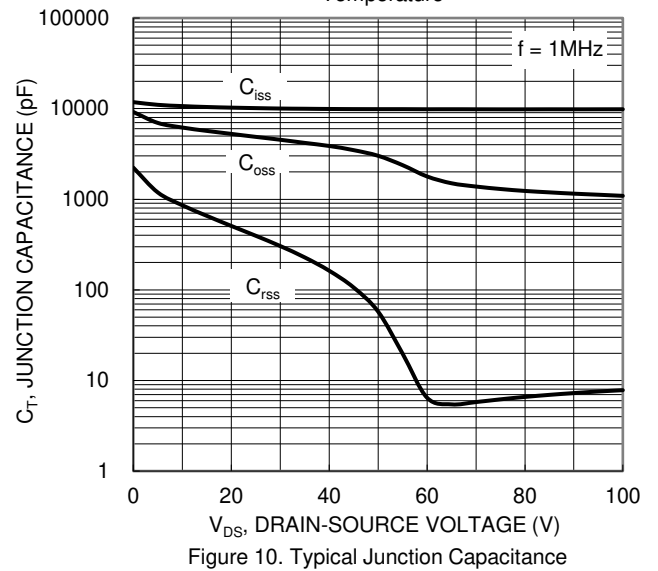
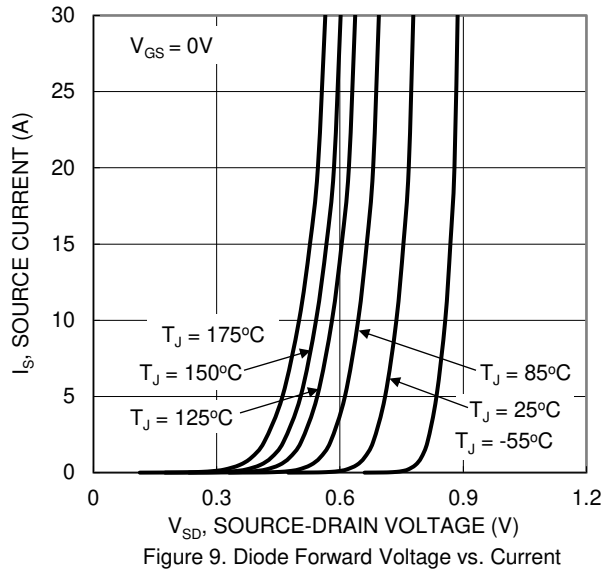
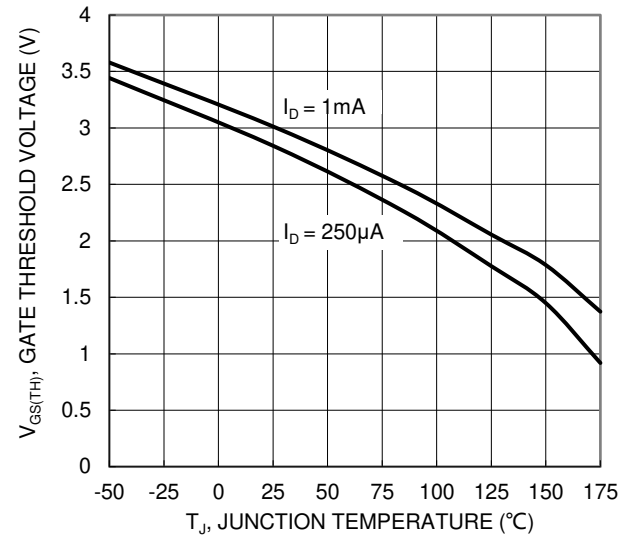
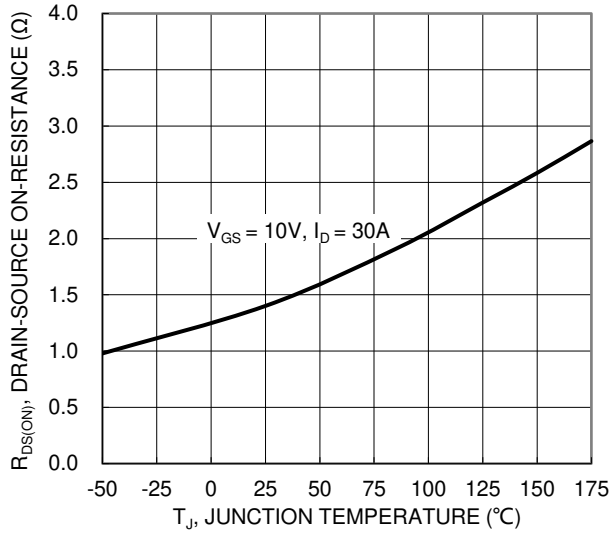


Figure 6. On-Resistance Variation with Temperature



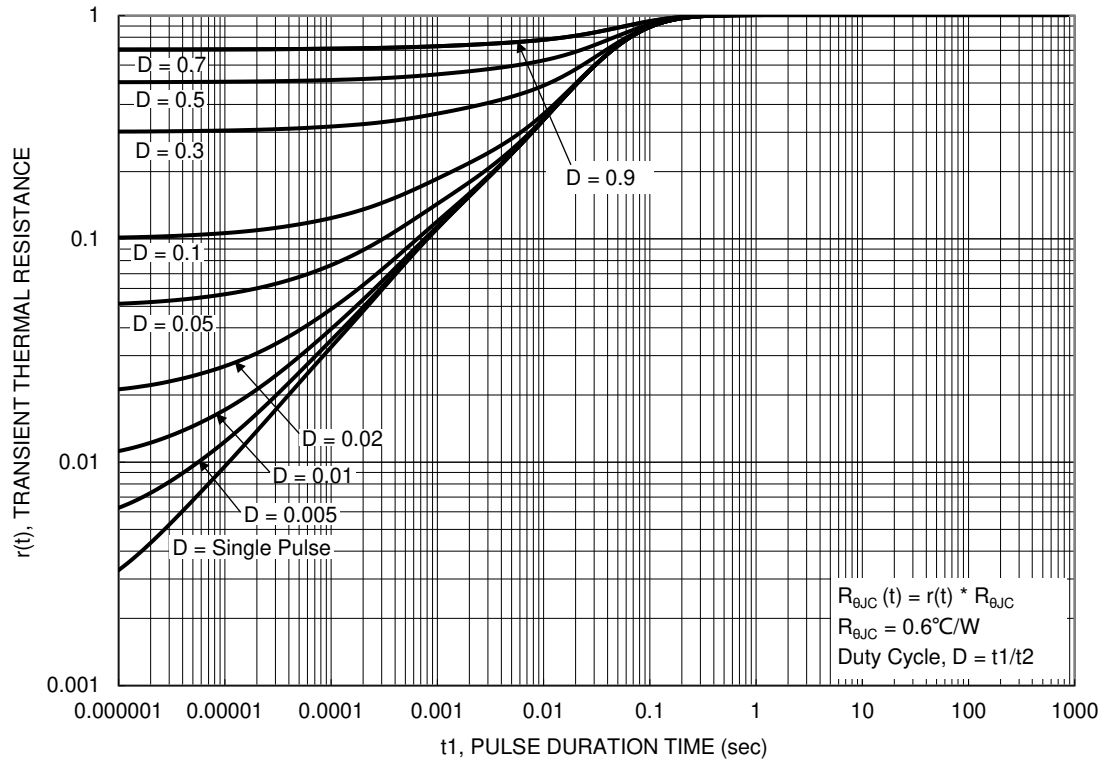
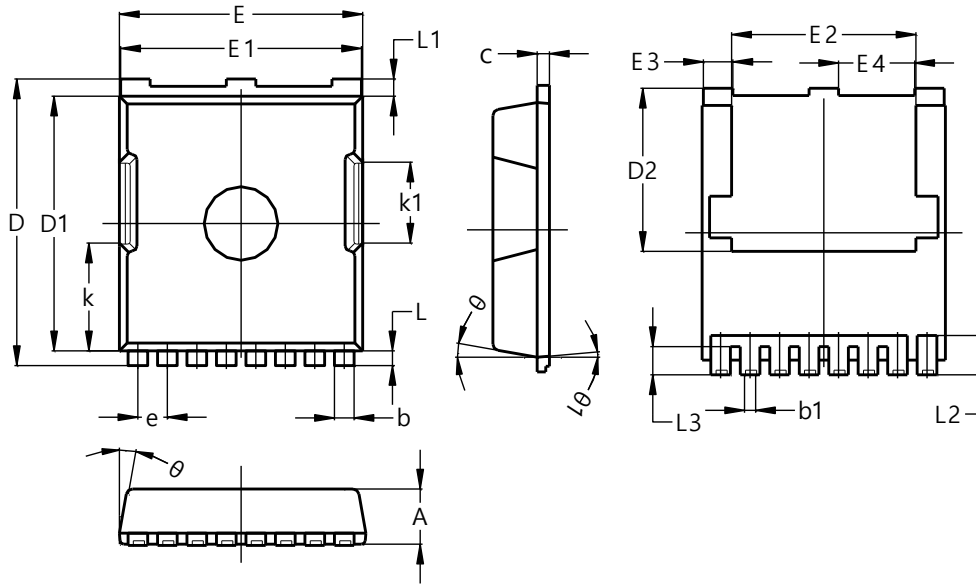


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

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

POWERDI1012-8

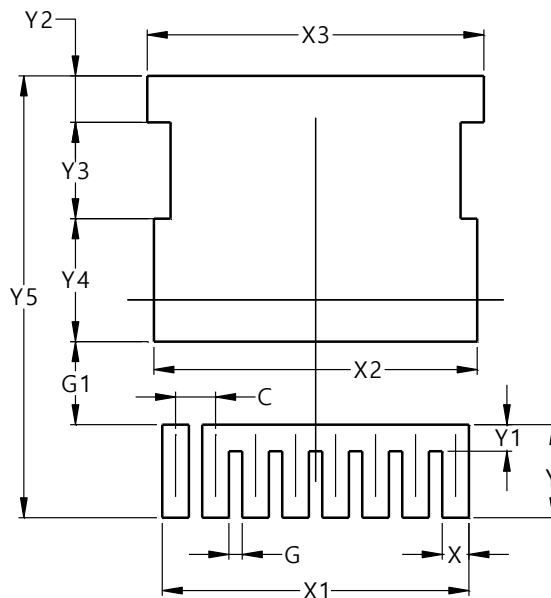


POWERDI1012-8			
Dim	Min	Max	Typ
A	2.20	2.40	2.30
b	0.70	0.90	0.80
b1	0.42	0.50	0.45
c	0.40	0.60	0.50
D	11.48	11.88	11.68
D1	10.23	10.53	10.38
D2	6.45	6.85	6.65
E	9.70	10.10	9.90
E1	9.70	9.90	9.80
E2	7.00	8.00	7.50
E3	1.10	1.30	1.20
E4	3.00	3.20	3.10
e	1.20 BSC		
k	4.39 REF		
k1	3.30 REF		
L	0.50	0.70	0.60
L1	0.50	0.90	0.70
L2	1.40	1.80	1.60
L3	1.00	1.30	1.15
θ	0°	15°	10°
θ1	0°	10°	5°
All Dimensions in mm			

Suggested Pad Layout

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

POWERDI1012-8



Dimensions	Value (in mm)
C	1.200
G	0.400
G1	2.500
X	0.800
X1	9.200
X2	9.700
X3	10.100
Y	2.800
Y1	0.800
Y2	1.400
Y3	2.900
Y4	3.700
Y5	13.300

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