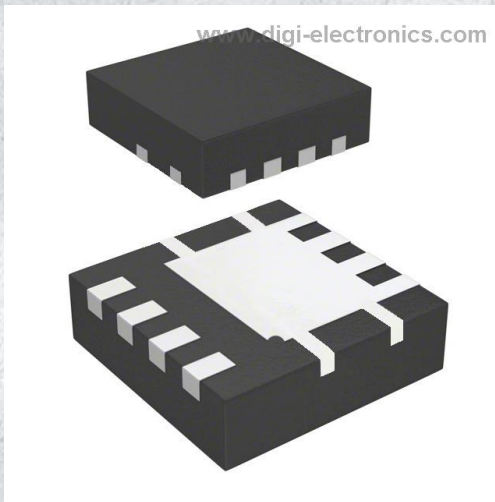


DMP3008SFGQ-7 Datasheet



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	DMP3008SFGQ-7-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	DMP3008SFGQ-7
Description	MOSFET P-CH 30V 8.6A PWRDI3333-8
Detailed Description	P-Channel 30 V 8.6A (Ta) 900mW (Ta) Surface Mount POWERDI3333-8



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

DMP3008SFGQ-7

Series:

-

FET Type:

P-Channel

Drain to Source Voltage (Vdss):

30 V

Drive Voltage (Max Rds On, Min Rds On):

4.5V, 10V

Vgs(th) (Max) @ Id:

2.1V @ 250µA

Vgs (Max):

±20V

FET Feature:

-

Operating Temperature:

-55°C ~ 150°C (Tj)

Supplier Device Package:

PowerDI3333-8

Base Product Number:

DMP3008

Manufacturer:

Diodes Incorporated

Product Status:

Active

Technology:

MOSFET (Metal Oxide)

Current - Continuous Drain (Id) @ 25°C:

8.6A (Ta)

Rds On (Max) @ Id, Vgs:

17mOhm @ 10A, 10V

Gate Charge (Qg) (Max) @ Vgs:

47 nC @ 10 V

Input Capacitance (Ciss) (Max) @ Vds:

2230 pF @ 15 V

Power Dissipation (Max):

900mW (Ta)

Mounting Type:

Surface Mount

Package / Case:

8-PowerVDFN

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0095

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



DMP3008SFGQ

30V P-CHANNEL ENHANCEMENT MODE MOSFET PowerDI®

Product Summary

BV_{DSS}	$R_{DS(ON)}$ Max	I_D Max $T_A = 25^\circ\text{C}$
-30V	17m Ω @ $V_{GS} = -10\text{V}$	-8.6A
	25m Ω @ $V_{GS} = -4.5\text{V}$	-7.1A

Features and Benefits

- Low $R_{DS(ON)}$ – Ensures On-State Losses are Minimized
- Small Form Factor Thermally Efficient Package Enables Higher Density End Products
- Occupies Just 33% of the Board Area Occupied by SO-8 Enabling Smaller End Product
- **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**
- **PPAP Capable (Note 4)**

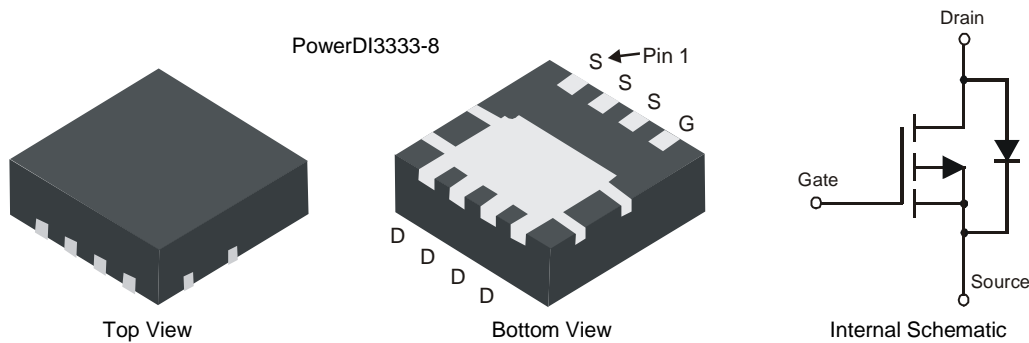
Description and Applications

This MOSFET is designed to minimize the on-state resistance ($R_{DS(ON)}$), yet maintain superior switching performance, making it ideal for high efficiency power management applications.

- Backlighting
- Power Management Functions
- DC-DC Converters

Mechanical Data

- Case: PowerDI® 3333-8
- 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 Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.008 grams (Approximate)

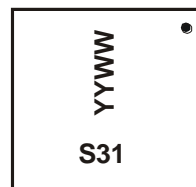


Ordering Information (Note 5)

Part Number	Case	Packaging
DMP3008SFGQ-7	PowerDI3333-8	2,000/Tape & Reel
DMP3008SFGQ-13	PowerDI3333-8	3,000/Tape & Reel

- 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> 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



S31 = Product Type Marking Code
YYWW = Date Code Marking
YY = Last digit of year (ex: 11 = 2011)
WW = Week code (01 ~ 53)

PowerDI is a registered trademark of Diodes Incorporated.



DMP3008SFGQ

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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V_{GSS}	± 20	V
Continuous Drain Current (Note 7) $V_{GS} = -10\text{V}$	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	-8.6 -7.0	A
	$t < 10\text{s}$	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	-11.7 -9.3	A
Continuous Drain Current (Note 7) $V_{GS} = -4.5\text{V}$	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	-7.1 -5.6	A
	$t < 10\text{s}$	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	-9.6 -7.6	A
Pulsed Drain Current (10 μs pulse, duty cycle = 1%)			I_{DM}	-80	A
Maximum Continuous Body Diode Forward Current (Note 7)			I_S	-3.0	A

Thermal Characteristics

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 6)		P_D	0.9	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	140	$^\circ\text{C/W}$
	$t < 10\text{s}$		72	$^\circ\text{C/W}$
Total Power Dissipation (Note 7)		P_D	2.2	W
Thermal Resistance, Junction to Ambient (Note 7)	Steady State	$R_{\theta JA}$	57	$^\circ\text{C/W}$
	$t < 10\text{s}$		30	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case (Note 7)		$R_{\theta JC}$	7.1	$^\circ\text{C/W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes: 6. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
7. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.



DMP3008SFGQ

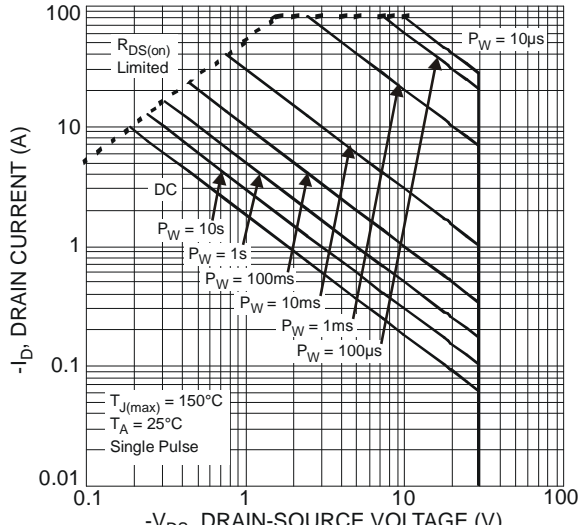


Fig. 1 SOA, Safe Operation Area

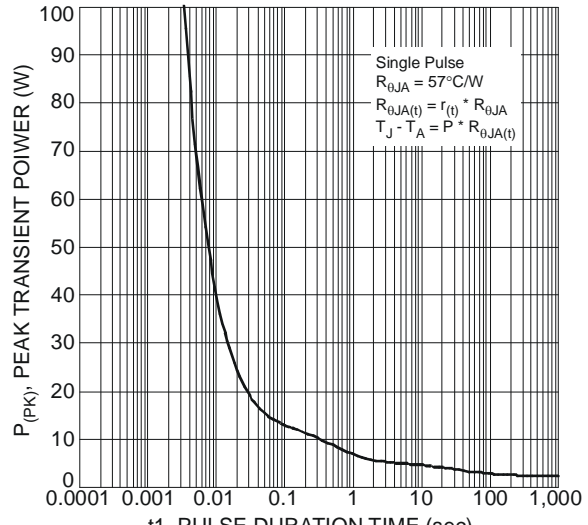


Fig. 2 Single Pulse Maximum Power Dissipation

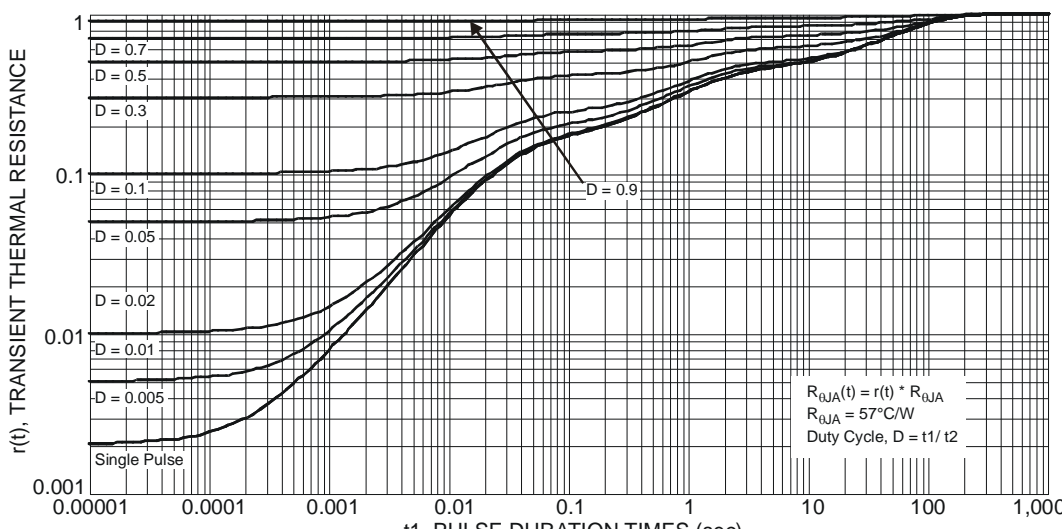


Fig. 3 Transient Thermal Resistance



DMP3008SFGQ

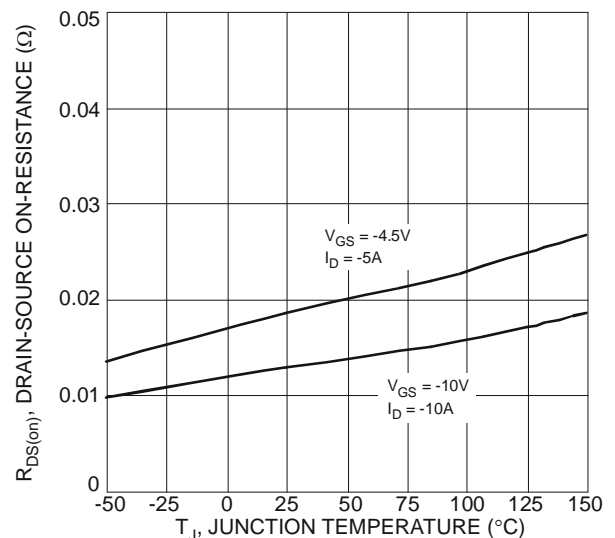
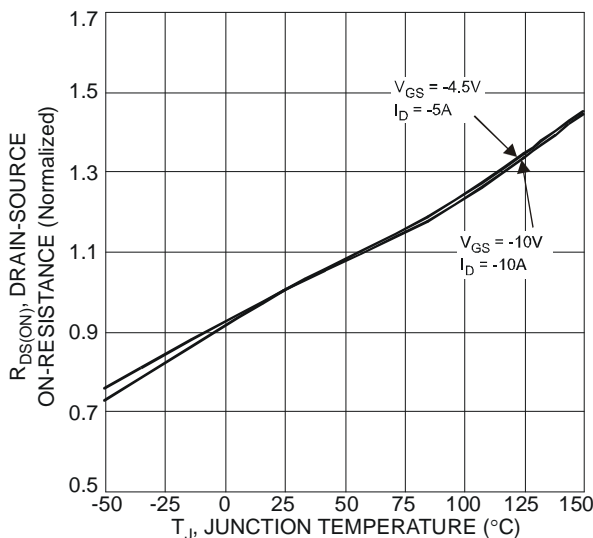
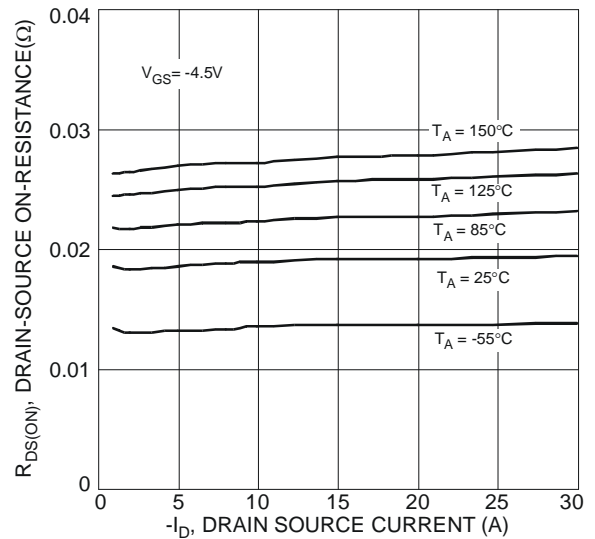
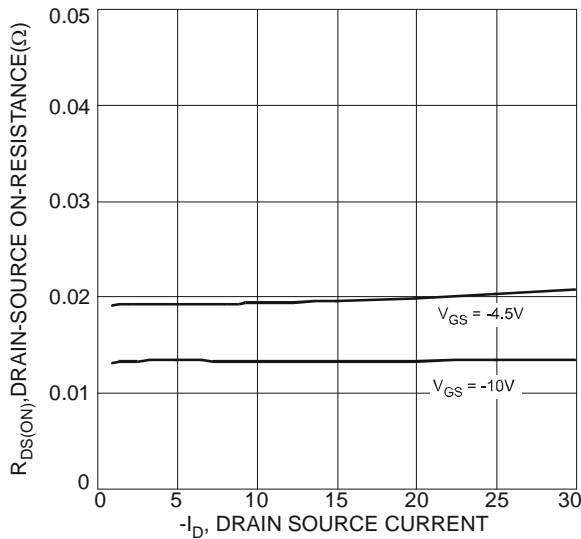
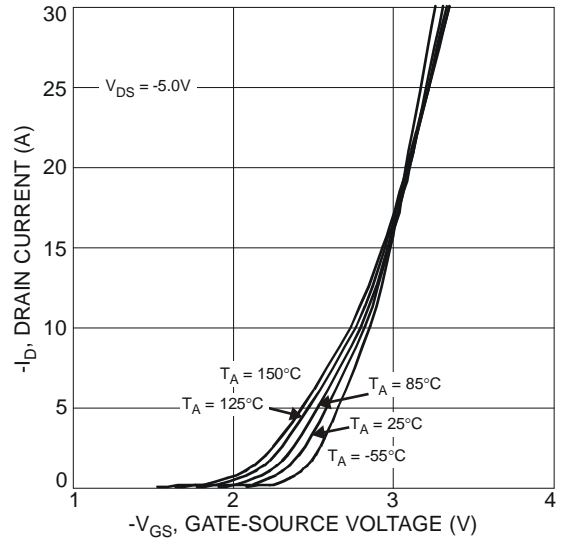
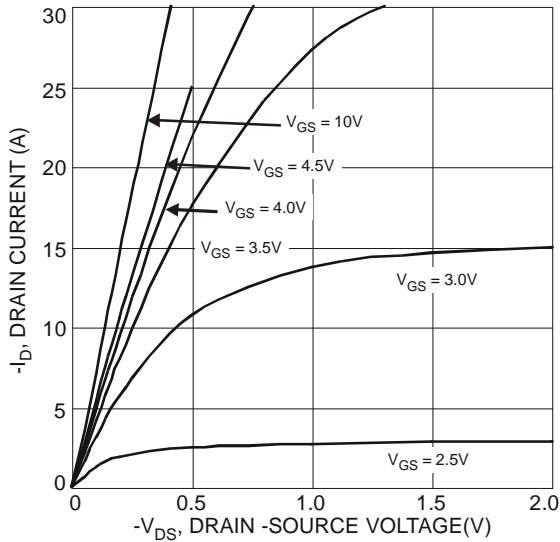
Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1.0	μA	$V_{DS} = -30V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	—	—	± 100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	$V_{GS(th)}$	-1.1	-1.6	-2.1	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	12.5	17	m Ω	$V_{GS} = -10V, I_D = -10A$
		—	18.5	25		$V_{GS} = -4.5V, I_D = -10A$
Forward Transfer Admittance	$ Y_{fs} $	—	13	—	S	$V_{DS} = -15V, I_D = -10A$
Diode Forward Voltage	V_{SD}	—	-0.7	-1.0	V	$V_{GS} = 0V, I_S = -1A$
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C_{iss}	—	2,230	—	pF	$V_{DS} = -15V, V_{GS} = 0V$ $f = 1.0MHz$
Output Capacitance	C_{oss}	—	328	—		
Reverse Transfer Capacitance	C_{rss}	—	294	—		
Gate Resistance	R_G	—	6.4	—	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$
Total Gate Charge ($V_{GS} = -10V$)	Q_g	—	47	—	nC	$V_{DS} = -15V, I_D = -10A$
Total Gate Charge ($V_{GS} = -4.5V$)	Q_g	—	23	—		
Gate-Source Charge	Q_{gs}	—	9.4	—		
Gate-Drain Charge	Q_{gd}	—	5.6	—		
Turn-On Delay Time	$t_{D(ON)}$	—	10.5	—	nS	$V_{GS} = -10V, V_{DS} = -15V, R_G = 6\Omega$
Turn-On Rise Time	t_R	—	8.5	—		
Turn-Off Delay Time	$t_{D(OFF)}$	—	90	—		
Turn-Off Fall Time	t_F	—	40	—		

Notes: 8. Short duration pulse test used to minimize self-heating effect.
9. Guaranteed by design. Not subject to product testing.



DMP3008SFGQ





DMP3008SFGQ

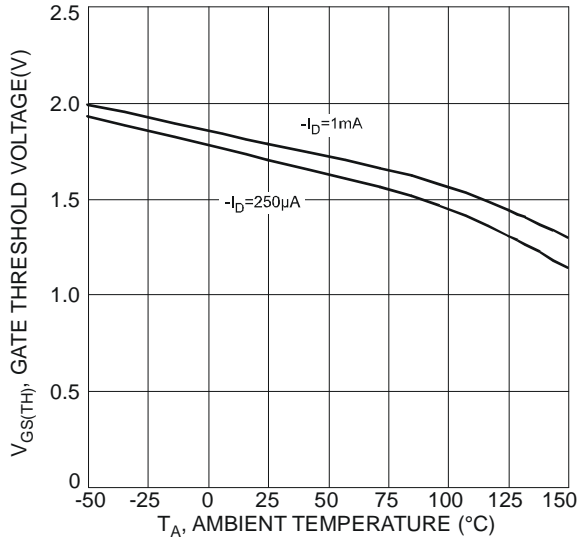


Fig. 10 Gate Threshold Variation vs. Ambient Temperature

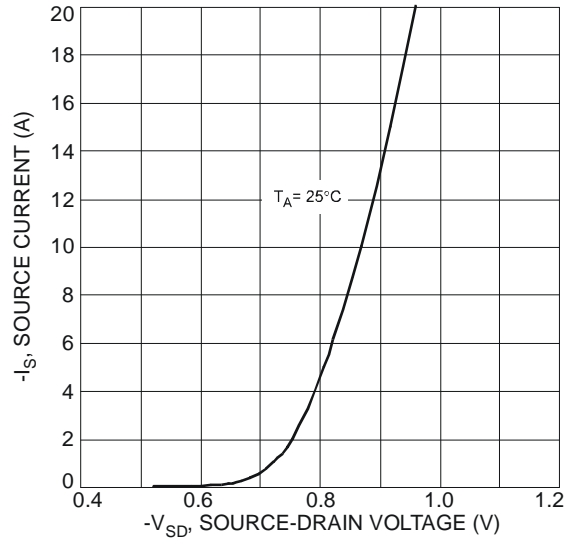


Fig. 11 Diode Forward Voltage vs. Current

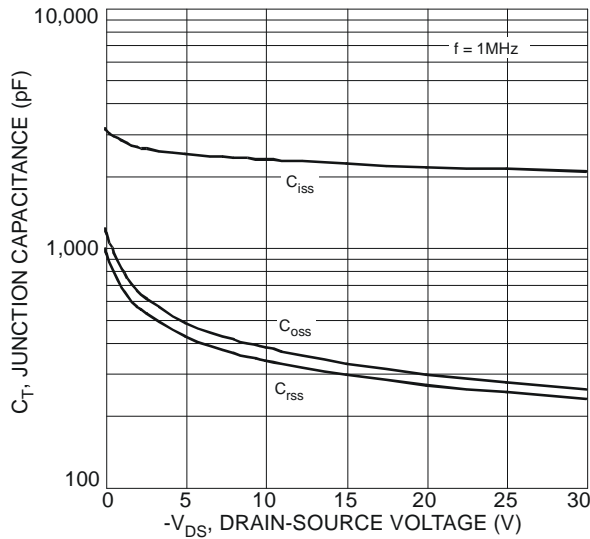


Fig. 12 Typical Junction Capacitance

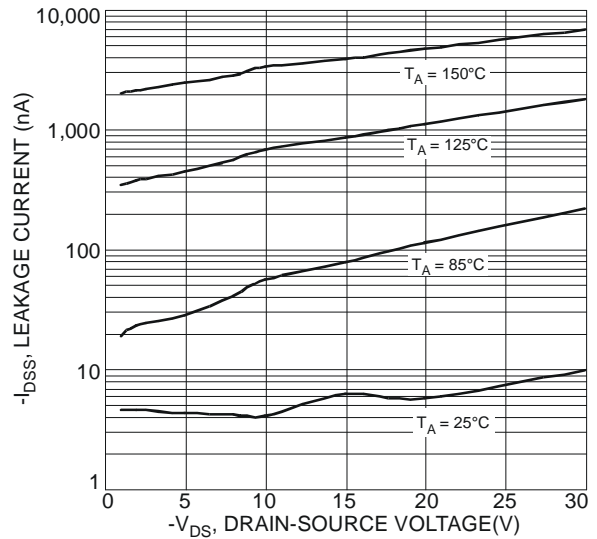


Fig. 13 Typical Drain-Source Leakage Current vs. Voltage

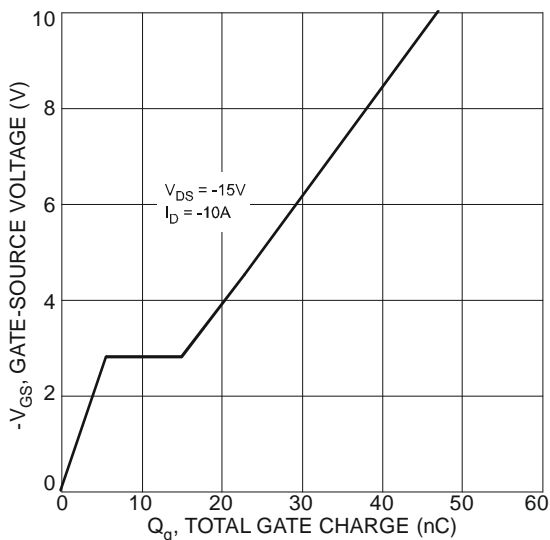


Fig. 14 Gate-Charge Characteristics

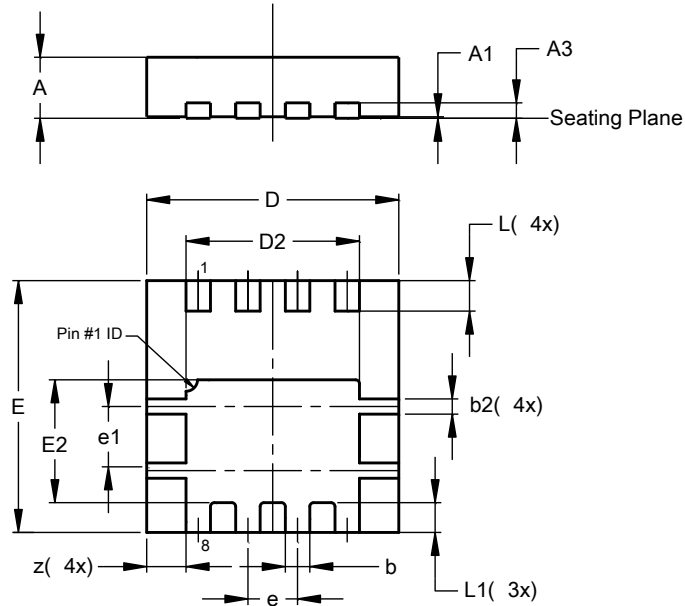


DMP3008SFGQ

Package Outline Dimensions

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

PowerDI3333-8

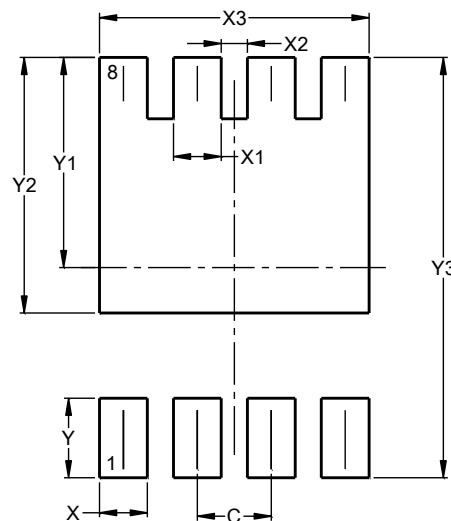


PowerDI3333-8			
Dim	Min	Max	Typ
A	0.75	0.85	0.80
A1	0.00	0.05	0.02
A3	-	-	0.203
b	0.27	0.37	0.32
b2	-	-	0.20
D	3.25	3.35	3.30
D2	2.22	2.32	2.27
E	3.25	3.35	3.30
E2	1.56	1.66	1.61
e	-	-	0.65
e1	0.79	0.89	0.84
L	0.35	0.45	0.40
L1	-	-	0.39
z	-	-	0.515
All Dimensions in mm			

Suggested Pad Layout

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

PowerDI3333-8



Dimensions	Value (in mm)
C	0.650
X	0.420
X1	0.420
X2	0.230
X3	2.370
Y	0.700
Y1	1.850
Y2	2.250
Y3	3.700



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