Dual N-Channel 30 V (D-S) MOSFET

PRODUCT SUMMARY

BV_{DSS}	30V
$R_{DSON(MAX)}$	0.016Ω
I_D	35A

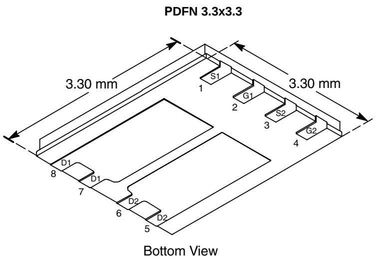
FEATURES

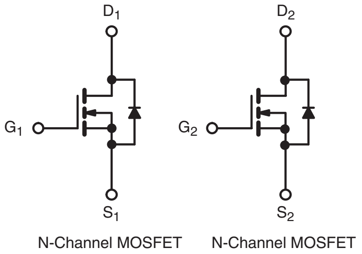
- TrenchFET® Power MOSFET
- 100 % R_g Tested
- 100 UIS Tested

RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

- Synchronous Rectification
- Notebook System Power
- POL
- Low Current DC/DC





Absolute Maximum Ratings(T_A = 25 °C, unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current@10V	T_C = 25 ℃	I_D	35	A
	T_C = 100 ℃		20	
Pulsed Drain Current		I_{DM}	140	A
Single Pulse Avalanche Energy	L = 0.1 mH	E_{AS}	13	mJ
Avalanche Current		I_{AS}	16	A
Total Power Dissipation	T_C = 25 ℃	P_D	27	W
	T_A = 25 ℃		0.22	
Operating Junction and Storage Temperature Range		T_J , T_{STG}	-55 to +150	℃

Thermal Characteristics

Parameter	Symbol	LIMIT.	Unit
Thermal resistance, junction-to-ambient	$R_{\theta JA}$	4.6	℃/W
Thermal resistance, junction-to-case	$R_{\theta JC}$	62	

Electrical Characteristics T_J = 25°C, unless otherwise noted

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	V_{GS} = 0 V , I_D = 250 µA	30	-	-	V
Gate-body Leakage current		I_{GSS}	V_{DS} = 0 V , V_{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	T_J = 25℃	I_{DSS}	V_{DS} = 30 V , V_{GS} = 0 V	-	-	1	µA
	T_J = 125℃			-	-	10	
Gate-Threshold Voltage		$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = 250 µA	1		2.5	V
Drain-Source On-Resistance		$R_{DS(on)}$	V_{GS} = 10 V , I_D = 10 A	-	0.012	0.016	Ω
			V_{GS} = 4.5 V , I_D = 5 A	-	0.018	0.024	
Forward Transconductance		g_{fs}	V_{DS} = 10 V , I_D = 3 A	-	6	-	S
Dynamic Characteristics							
Input Capacitance		C_{iss}	V_{DS} = 25 V , V_{GS} = 0 V , f = 1 MHz	-	622	-	pF
Output Capacitance		C_{oss}		-	87	-	
Reverse Transfer Capacitance		C_{rss}		-	62	-	
Switching Characteristics							
Total Gate Charge		Q_g	V_{GS} = 4.5 V , V_{DS} = 15 V , I_D = 5 A	-	7.6	-	nC
Gate-Source Charge		Q_{gs}		-	2.5	-	
Gate-Drain Charge		Q_{gd}		-	5	-	
Turn-On Delay Time		$t_{d(on)}$	V_{DD} = 15 V , I_D ≅ 5 A , V_{GEN} = 4.5 V , R_G = 6 Ω	-	4	-	nS
Rise Time		t_r		-	12	-	
Turn-Off Delay Time		$t_{d(off)}$		-	24	-	
Fall Time		t_f		-	6.8	-	
Drain-Source Body Diode Characteristics							
Diode Forward Voltage		V_{SD}	I_S = - 1 A , V_{GS} = 0 V	-	-	1	V
Continuous Source-Dranin Diode Current		I_S	T_J = 25 °C	-	-	35	A
Continuous Source Current		I_{SM}		-	-	70	A

Notes:

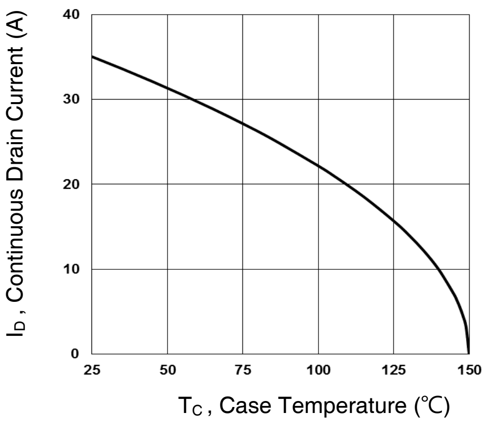
a. Repetitive Rating : Pulsed width limited by maximum junction temperature.

b. V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=16A.,R_G=25Ω,Starting T_J=25℃.

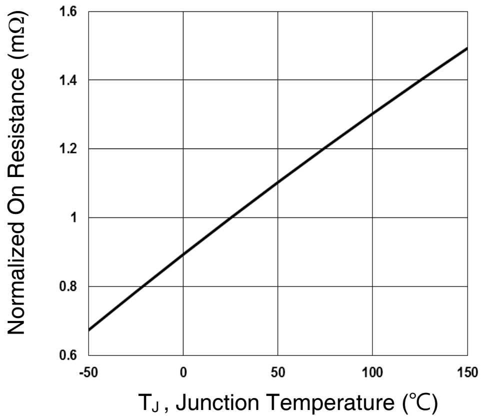
c. The data tested by pulsed , pulse width≦300us , duty cycle≦2%.

d. Essentially independent of operating temperature.

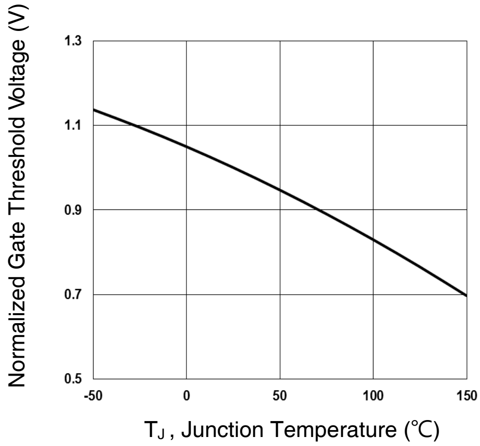
TYPICAL CHARACTERISTICS (25 °C unless noted)



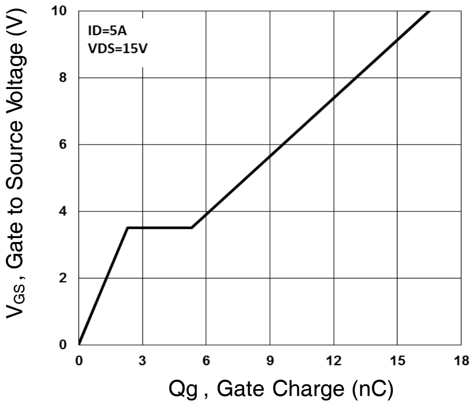
Continuous Drain Current vs. T_C



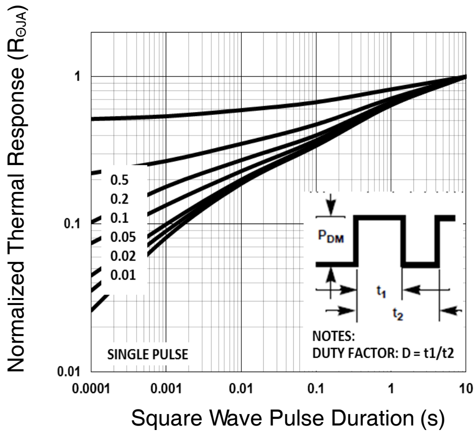
Normalized RDSON vs. T_J



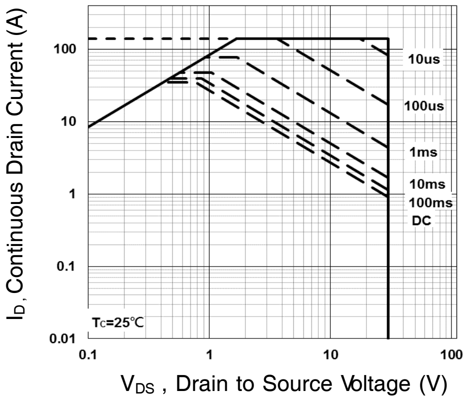
Normalized V_{th} vs. T_J



Gate Charge Waveform

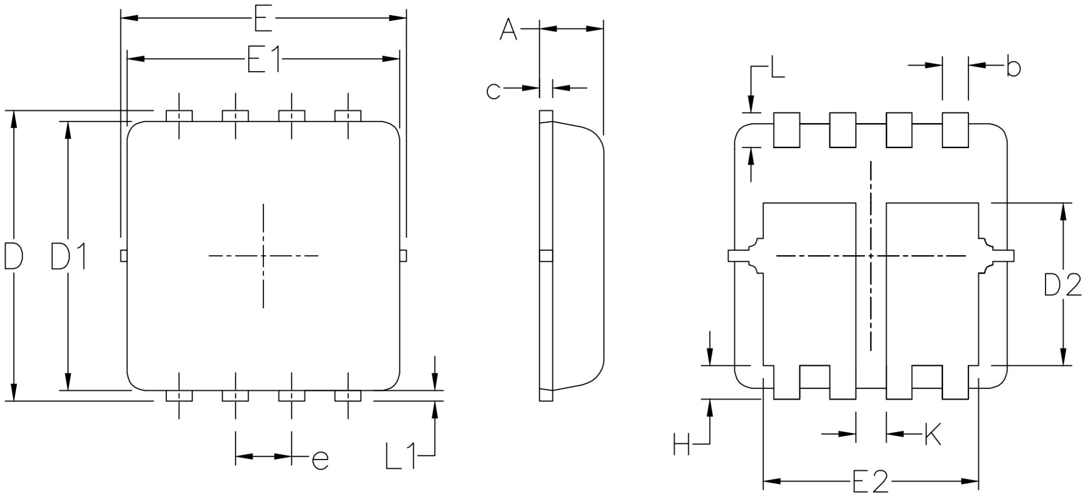


Normalized Transient Response



Maximum Safe Operation Area

PDFN3333-8B_Dual_P PACKGE OUTLIN



Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
E	3.00	3.20	3.40
E1	3.00	3.10	3.20
E2	2.39	2.49	2.59
e	0.65 BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	--	0.13	--
K	0.30	--	--

Notes:

1. Refer to JEDEC MO-240 variation CA.
2. Dimensions "D1" and "E1" do NOT include mold flash protrusions or gate burrs.
3. Dimensions "D1" and "E1" include interterminal flash or protrusion. Interterminal flash or protrusion shall not exceed 0.25mm per side.