PRODUCT DATA SHEET

To learn more about JGSEMI, please visit our website at

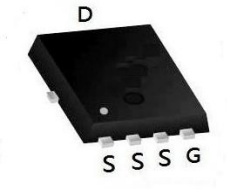
Datasheet Resources Samples

Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

PE8250MH-A

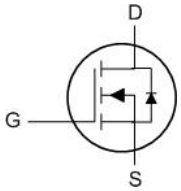
N-Ch 20V Fast Switching MOSFETs

BVDSS	RDSON	ID
20V	3.1 mΩ	80A



PDFN3333-8L

- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	80	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V[1]	35	A
I_{DM}	Pulsed Drain Current[2]	200	A
EAS	Single Pulse Avalanche Energy[3]	58	mJ
I_{AS}	Avalanche Current	41	A
P_D@T_C=25℃	Total Power Dissipation[4]	58	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	2.6	℃/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	20	---	---	V
$\Delta BV_{DSS}/\Delta T_J$	BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=1mA	---	---	---	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V, I_D=30A	---	3.1	4.8	mΩ
		V_{GS}=2.5V , I_D=20A	---	4.2	5.3	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	0.4	0.7	1.1	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	---	---	mV/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}20V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=20V, V_{GS}=0V , T_J=100℃	---	---	100	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±12V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=20A	---	---	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	---	---	Ω
Q_g	Total Gate Charge	V_{DS}=10V , V_{GS}=4.5V , I_D=30A	---	32	---	nC
Q_{gs}	Gate-Source Charge		---	3	---	
Q_{gd}	Gate-Drain Charge		---	11	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD} = 10V,ID=30A R_G = 3Ω, V_{GS}=4.5V	---	17	---	ns
T_r	Rise Time		---	49	---	
$T_{d(off)}$	Turn-Off Delay Time		---	74	---	
T_f	Fall Time		---	26	---	
C_{iss}	Input Capacitance	V_{DS}=10V , V_{GS}=0V , f=1MHz	---	2500	---	pF
C_{oss}	Output Capacitance		---	407	---	
C_{rss}	Reverse Transfer Capacitance		---	386	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	---	---	80	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=30A , T_J=25℃	---	---	1.2	V
t_{rr}	Reverse Recovery Time	IF=20A ,di/dt=100A / μs , T_J= 25℃	---	---	---	nS
Q_{rr}	Reverse Recovery Charge		---	---	---	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: T_J=25℃, V_{DD}=10V, V_G=4.5V, L=0.5mH, R_G=25Ω, I_{AS}=15A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Performance Characteristics

Figure1: Output Characteristics

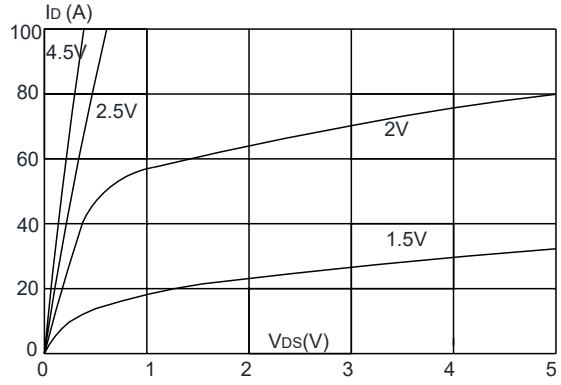


Figure 2: Typical Transfer Characteristics

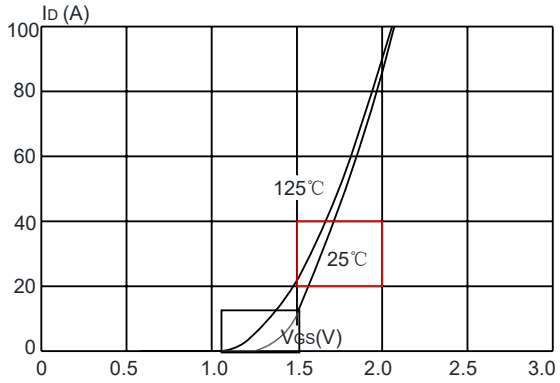


Figure 3: On-resistance vs. Drain Current

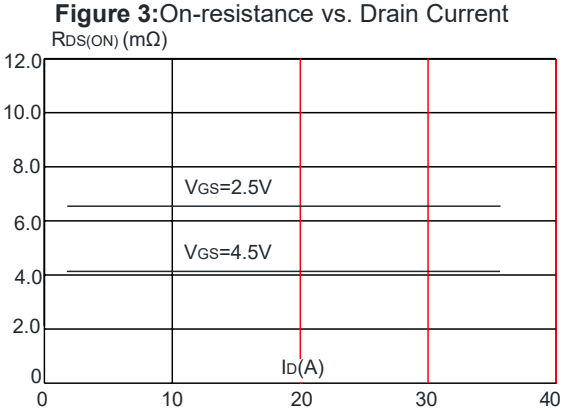


Figure 4: Body Diode Characteristics

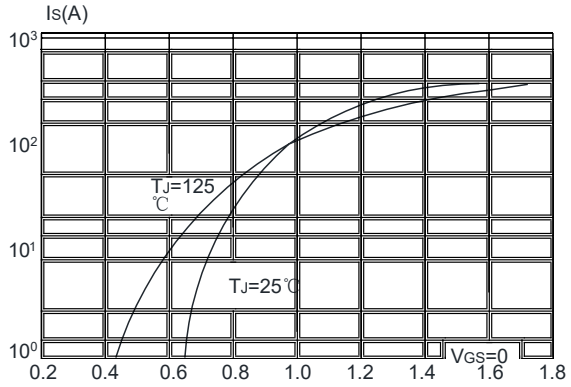


Figure 5: Gate Charge Characteristics

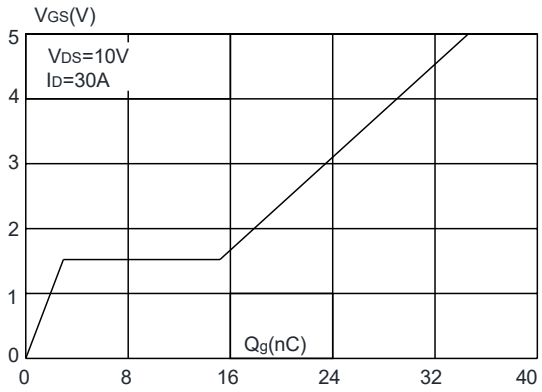


Figure 6: Capacitance Characteristics

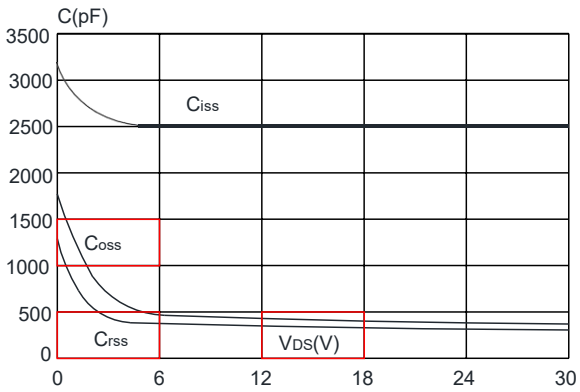


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

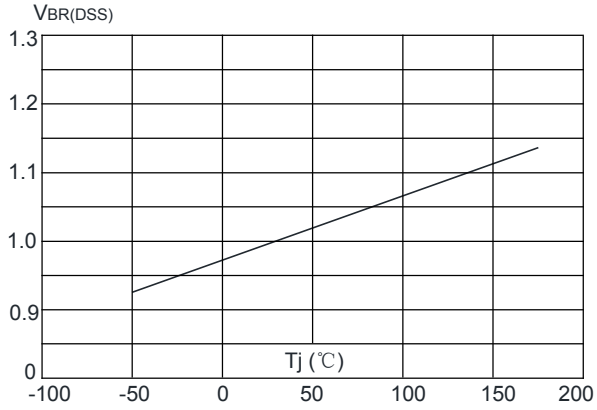


Figure 8: Normalized on Resistance vs. Junction Temperature

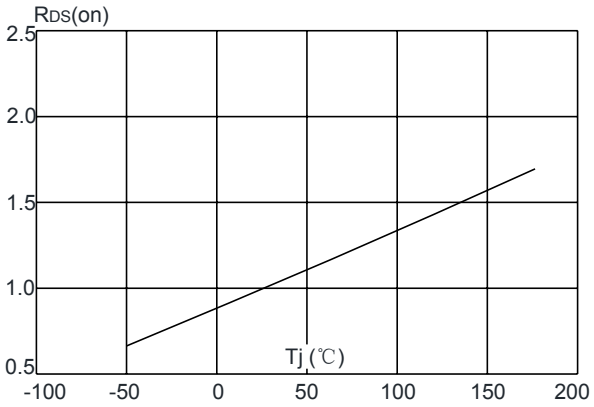


Figure 9: Maximum Safe Operating Area

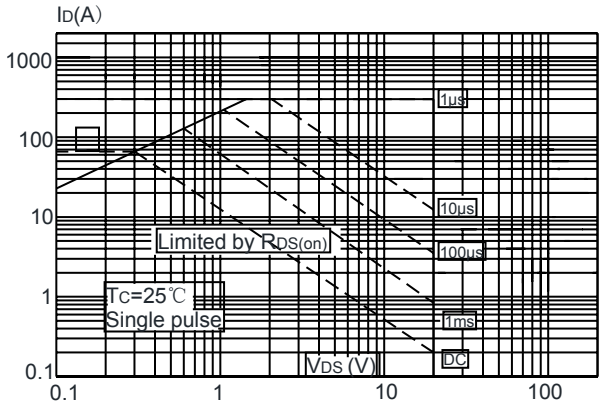


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

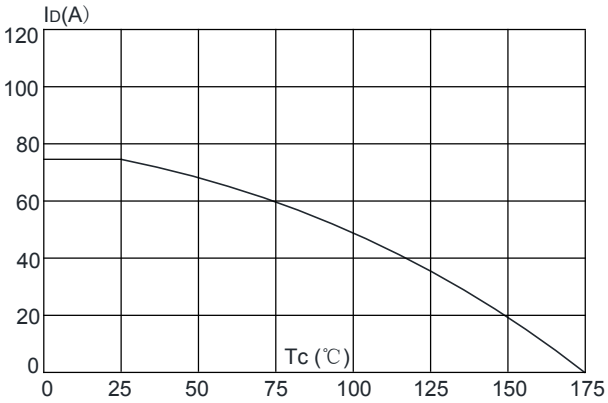
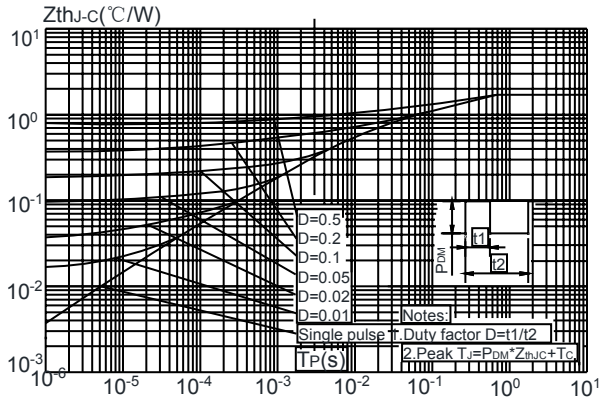
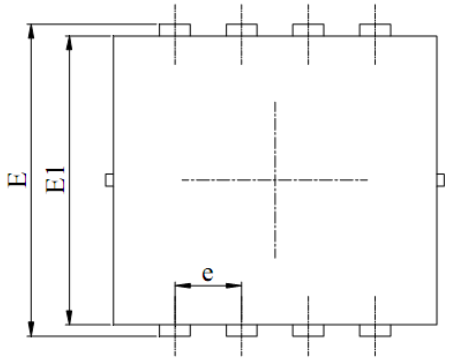


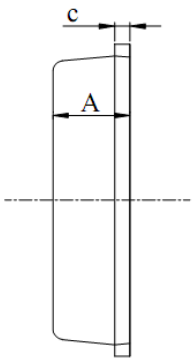
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



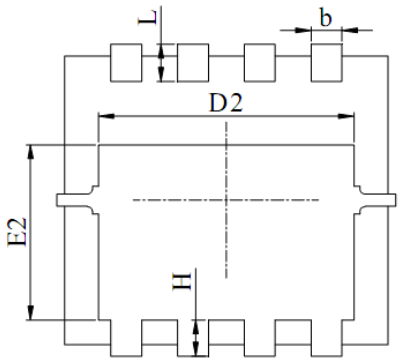
Package Mechanical Data-PDFN3333-8L-Single



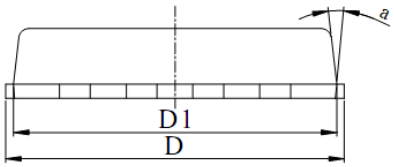
Top View



Side View



Bottom View

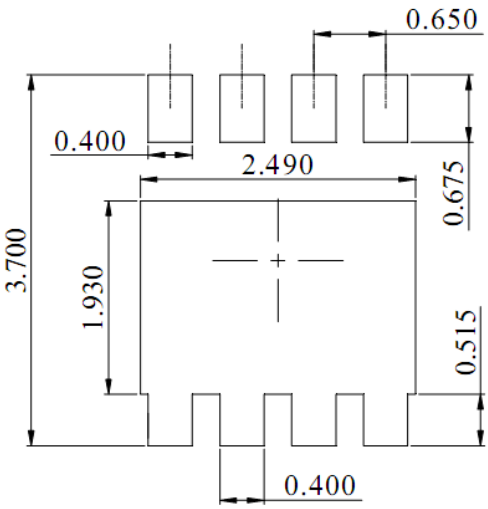


Front View

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMNESIONS IN MILLIMETER (ANNGLE IN DEGREE).
3. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.

DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.20	0.25
D	3.00	3.15	3.25
D1	2.95	3.05	3.15
D2	2.39	2.49	2.59
E	3.20	3.30	3.40
E1	2.95	3.05	3.15
E2	1.70	1.80	1.90
e	0.65 BSC		
H	0.30	0.40	0.50
L	0.25	0.40	0.50
a	---	---	15°



DIMENSIONS:MILLIMETERS

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1, Any and all JGSEMI products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, orother applic ations whose failure can be reasonably expected to result in serious physical or material damage. Consult with your JGSEMI representative nearest you before using any JGSEMI products described or contained herein in such applicati ons.

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