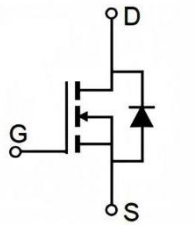
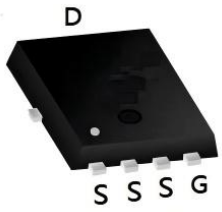
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	40	V
$R_{DS(on)}$	6	mΩ
I_D	60	A





PDFN5x6

Features

- Fast switching speed
- Surface mount package
- 100% Single Pulse avalanche energy Test

Applications

- Motor/Body Load Control
- PWM Application
- DC-DC converters

Absolute Maximum Ratings (Ta=25℃,unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	I_D	60	A
	T_C=100℃		40	
Pulsed Drain Current		I_{DM}	240	A
Single Pulse Avalanche Energy		E_{AS}	96	mJ
Total Power Dissipation	T_C=25℃	P_D	46	W
Storage Temperature Range		T_{STG}	-55 to 150	℃
Operating Junction Temperature Range		T_J	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-ambient	$R_{\theta JA}$	--	--	℃/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	--	2.7	℃/W

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS}=0V, I_D=250uA	40	--	--	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	--	6	8	mΩ
		V_{GS}=4.5V, I_D=15A	--	9	12	
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250uA	1.0	1.6	2.2	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=32V, V_{GS}=0V	--	--	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	--	--	±100	nA
Gate Resistance	R_G	V_{DS}=20V,V_{GS}=0V, f=1MHz	--	1.8	--	Ω
Total Gate Charge	Q_g	I_D=20A, V_{DS}=20V V_{GS}=10V	--	45	--	nC
Gate-Source Charge	Q_{gs}		--	11	--	
Gate-Drain Charge	Q_{gd}		--	11	--	
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=20V, R_G=3Ω V_{GS}=10V, I_D=20A	--	11	--	ns
Rise Time	T_r		--	29	--	
Turn-Off Delay Time	$T_{d(off)}$		--	42	--	
Fall Time	T_f		--	7	--	
Input Capacitance	C_{iss}	V_{DS}=20V, V_{GS}=0V , f=1MHz	--	2450	--	pF
Output Capacitance	C_{oss}		--	168	--	
Reverse Transfer Capacitance	C_{rss}		--	135	--	

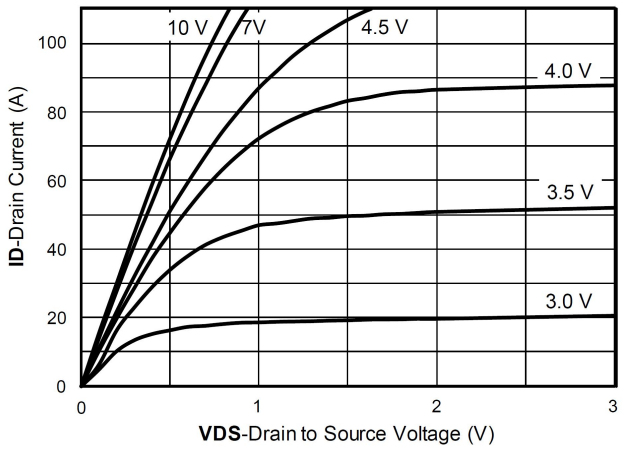
Diode Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I_S	V_G=V_D=0V , Force Current	--	--	60	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A ,T_J=25℃	--	--	1.2	V
Reverse Recovery Time	t_{rr}	di/dt=100A/μs T_J=25℃, I_F=20A	--	12	--	ns
Reverse Recovery Charge	Q_{rr}		--	7	--	nC

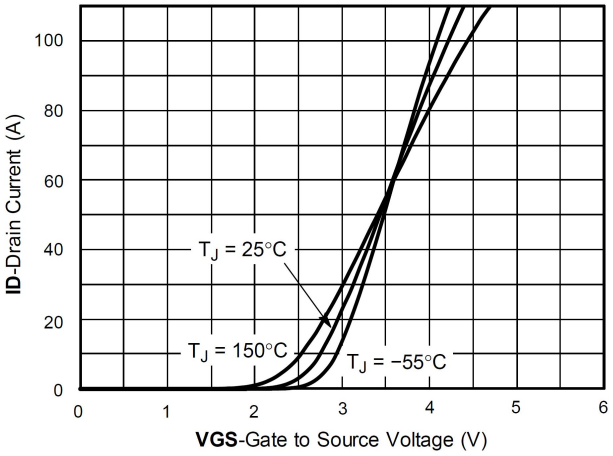
Note:

1. The EAS Test condition is VDD=20V,VGS=10V,L=0.1mH, Rg=25Ω.

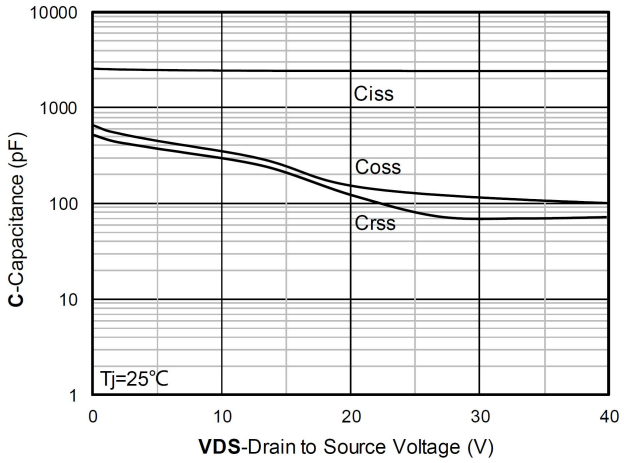
Typical Characteristics



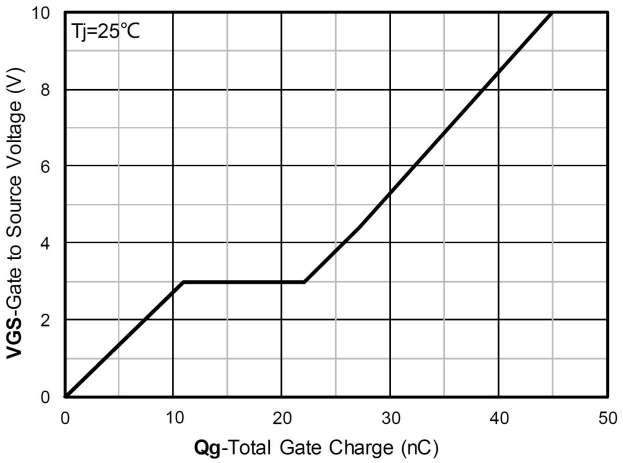
Output Characteristics



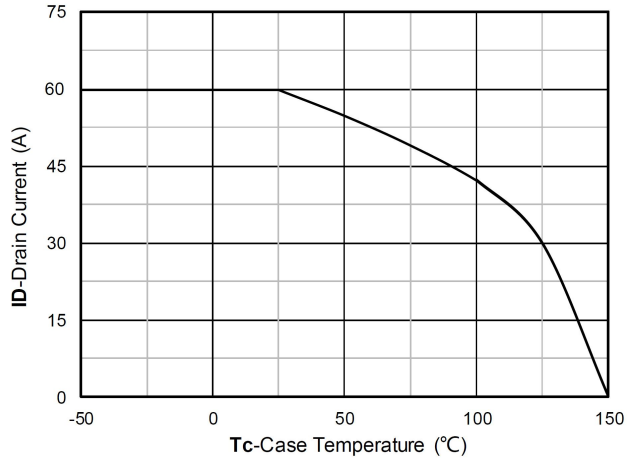
Transfer Characteristics



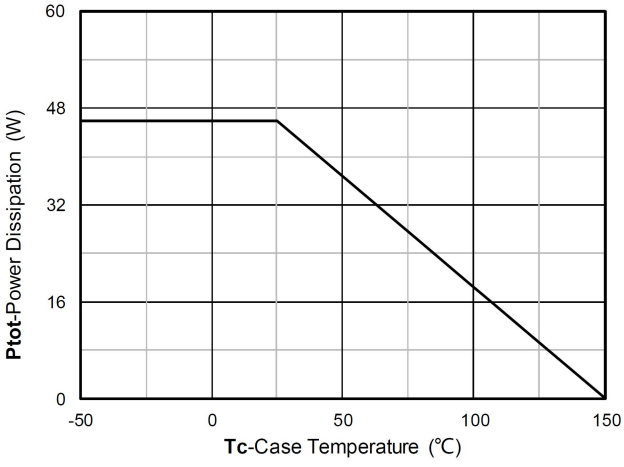
Capacitance Characteristics



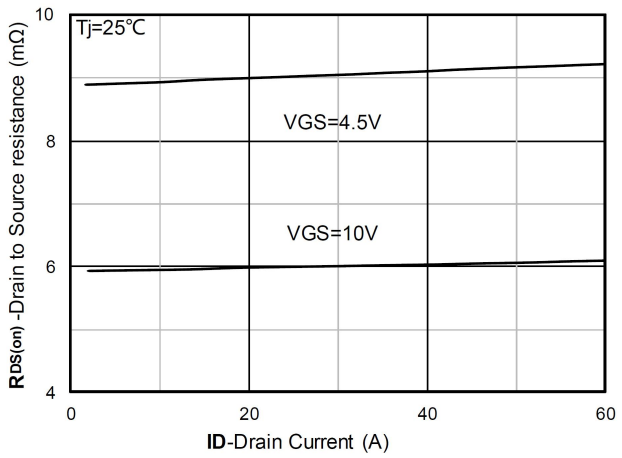
Gate Charge



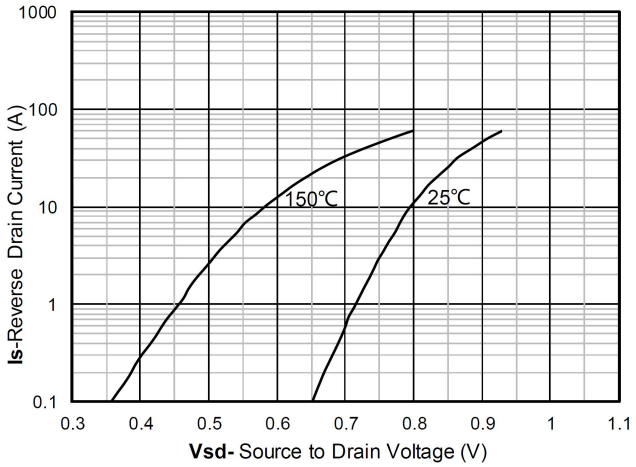
Current dissipation



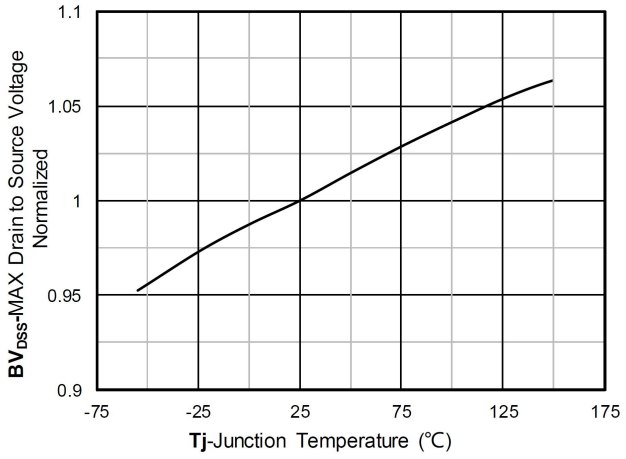
Power dissipation



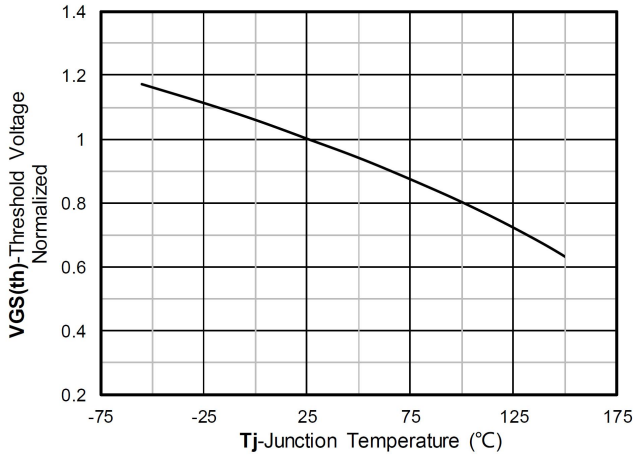
RDS(on) VS Drain Current



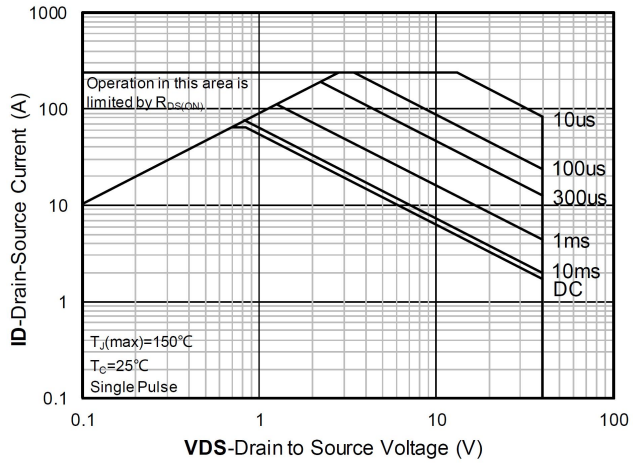
Forward characteristics of reverse diode



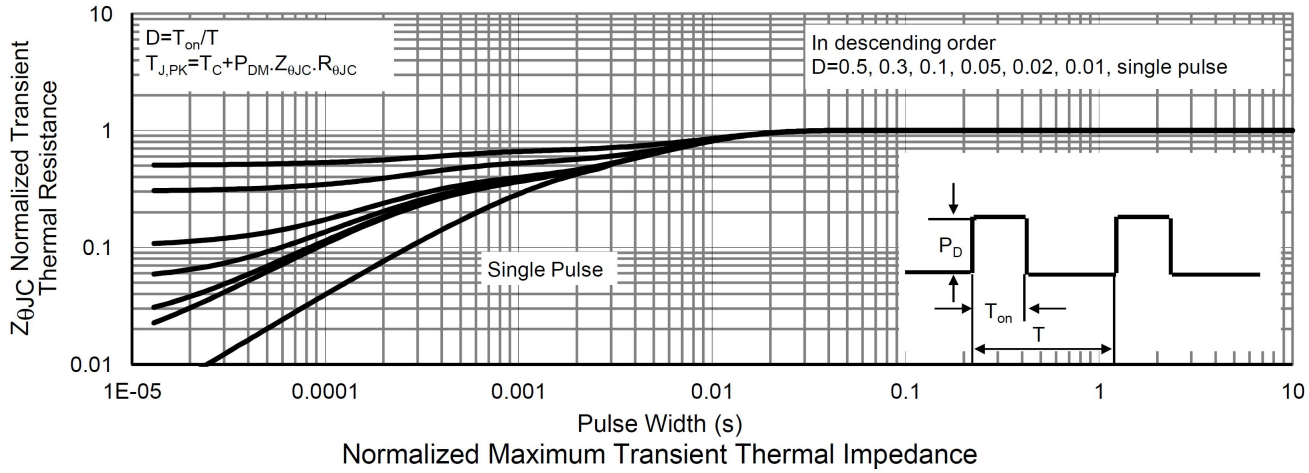
Normalized breakdown voltage



Normalized Threshold voltage



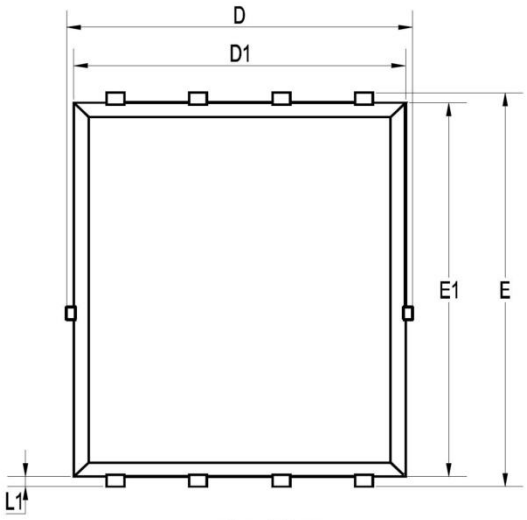
Safe Operation Area



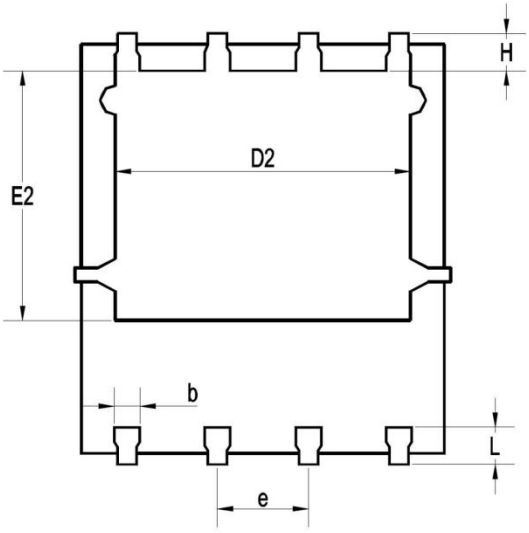
Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions (Units: mm)

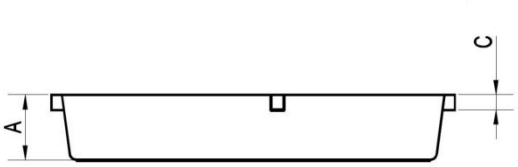
PDFN5x6



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.120	0.035	0.044
b	0.330	0.510	0.013	0.020
C	0.110	0.340	0.004	0.013
D	4.700	5.260	0.185	0.207
D1	4.700	5.100	0.185	0.201
D2	3.560	4.500	0.140	0.177
E	5.750	6.250	0.226	0.246
E1	5.600	6.000	0.220	0.236
E2	3.180	3.660	0.125	0.144
e	1.170	1.370	0.046	0.054
L	0.350	0.710	0.014	0.028
L1	0.060	0.200	0.002	0.008
H	0.350	0.710	0.014	0.028

***Important Usage Information and Disclaimer**

The specifications of Zhuhai Hypersemi Co., Ltd. products are not guarantees of product characteristics. They reflect typical performance expected in standard applications, which may vary with specific uses. Users must conduct prior testing for their applications and make necessary adjustments.

Users are responsible for the safety of applications utilizing our products and must implement adequate safety measures to prevent physical injury, fire, or other risks in case of product failure. It is the user's duty to ensure that application designs comply with all applicable laws and standards. Our products must not be used in any applications where a product failure could reasonably result in personal injury, unless specifically authorized in a signed document by Zhuhai Hypersemi Co., Ltd.

No representations or warranties are made regarding the accuracy or completeness of this information, including any claims of non-infringement of third-party intellectual property rights. Zhuhai Hypersemi Co., Ltd. assumes no liability for any applications or uses of its products and does not grant any licenses to its intellectual property rights or those of others. We also make no claims regarding non-infringement of third-party intellectual property rights that may arise from applications.

Due to technical requirements, our products may contain hazardous substances. For details, please contact your nearest sales office. This document replaces all previous information and may be updated. We reserve the right to make changes.