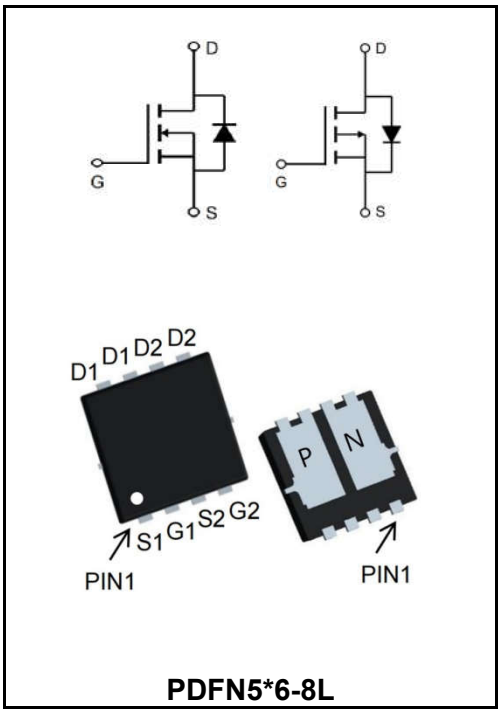
100V N+P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	8A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 75mΩ(Type:55 mΩ)
I_D	-6.5A
V_{DSS}	-100V
R_{DSON}-typ(@V_{GS}=-10V)	< 210mΩ(Type:170 mΩ)



PDFN5*6-8L

lead-free ROHS

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW8G10NF	PDFN5*6-8L	YFW 8G10NF XXXXX	5000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value		Units
		N-Ch	P-Ch	
Drain-Source Voltage	V_{DS}	100	-100	V
Gate - Source Voltage	V_{GS}	±20	±20	V
Continuous drain current[1], T_C=25 ℃	I_D	8	-6.5	A
Pulsed drain current[2], T_C=25 ℃	$I_{D,\ pulse}$	45	-40	A
Power dissipation[3], T_C=25 ℃	P_D	17	54	W
Single Pulse Avalanche Energy[4]	E_{AS}	4.2	38	mJ
Operation and storage temperature	T_{STG}, T_J	-55 to +150		°C
Thermal Resistance Junction-Case	$R_{\theta JC}$	7.4	2.3	°C/W
Thermal Resistance Junction-Ambient [5]	$R_{\theta JA}$	62	62	°C/W

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N-Channel Electrical Characteristics (TJ=25 ℃, unless otherwise noted)

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	BV_{DSS}	100	-	-	V
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	1.0	1.7	3.0	V
Drain-source on-state resistance	V_{GS}=10V, I_D=5A	$R_{DS(ON)}$	-	55	75	mΩ
	V_{GS}=4.5V, I_D=3A		-	112	300	
Gate-Source Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Drain-Source Leakage Current	V_{DS}=100V, V_{GS}=0V	I_{DSS}	-	-	200	nA
Input Capacitance	V_{DS}=50V V_{GS}=0V f=1MHz	C_{iss}	-	429.4	-	pF
Output Capacitance		C_{oss}	-	58.3	-	
Reverse Transfer Capacitance		C_{rss}	-	2.9	-	
Turn-on delay time	V_{GS}=10V V_{DS} =50V R_G = 2Ω I_D= 5A	$t_{d(on)}$	-	15.6	-	ns
Rise Time		T_r	-	4.2	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	26.8	-	
Fall Time		t_f	-	3.6	-	
Total Gate Charge	I_D=5A V_{DS}=50V V_{GS}=10V	Q_g	-	7.6	-	nC
Gate-Source Charge		Q_{gs}	-	1.4	-	
Gate-Drain Charge		Q_{gd}	-	2.4	-	
Gate plateau voltage		$V_{plateau}$	-	4.5		V
Diode forward current	VGS<Vth	I_S	-	-	15	A
Pulsed Source Current		I_{SP}	-	-	45	A
Diode Forward Voltage	I_S=7A ,V_{GS}=0V ,	V_{SD}	-	-	1.3	V
Reverse recovery time	I_S=5 A, di/dt=100 A/μs	t_{rr}	-	36.1	-	ns
Reverse recovery charge		Q_{rr}	-	50.4	-	nC
Peak reverse recovery current		I_{rrm}	-	2.6	-	A

Note
1、Calculated continuous current based on maximum allowable junction temperature.
2、Repetitive rating; pulse width limited by max. junction temperature.
3、Pd is based on max. junction temperature, using junction-case thermal resistance.
4、V_{DD}=50 V, R_G=50Ω, L=0.3 mH, starting Tj=25 °C.
5、The value of RθJA is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25 °C.

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P-Channel Electrical Characteristics (TJ=25 ℃, unless otherwise noted)

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	**V(BR)DSS**	-100	-	-	**V**
Static Drain-Source On-Resistance	V_{GS}=-10V, I_D=-5A	**$R_{DS(ON)}$**	-	170	210	**mΩ**
	V_{GS}=-4.5V, I_D=-2A		-	190	230	
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	**$V_{GS(th)}$**	-1	-	-3	**V**
Drain-to-Source Leakage Current	V_{DS}=-100V, V_{GS}=0V	**I_{DSS}**	-	-	-1	**uA**
Gate-to-Source forward leakage	V_{GS}=30V	**I_{GSS}**	-	-	100	**nA**
	V_{GS}=-30V			-	-100	
Total Gate Charge	I_D=-5A V_{DS}=-80V V_{GS}=-10V	**Q_g**	-	20	-	**nC**
Gate-to-Source Charge		**Q_{gs}**	-	3.5	-	
Gate-to-Drain("Miller") charge		**Q_{gd}**	-	4.6	-	
Turn-on delay time	V_{GS} = -10V V_{DS} = -50V R_{GEN}=25Ω I_D=-5A	**$t_{d(on)}$**	-	18	-	**ns**
Rise Time		**T_r**	-	8	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	100	-	
Fall Time		**t_f**	-	30	-	
Input Capacitance	V_{DS}=-25V V_{GS}=0V f=1MHz	**C_{iss}**	-	1419	-	**pF**
Output Capacitance		**C_{oss}**	-	89	-	
Reverse Transfer Capacitance		**C_{rss}**	-	45	-	
Continuous Source Current (Body Diode)	MOSFET symbol showing the integral reverse p-n junction diode.	**I_S**	-	-	-10	**A**
Pulsed Source Current (Body Diode)		**I_{SM}**	-	-	-20	**A**
Diode Forward Voltage	V_{GS}=0V , I_S=-1A	**V_{SD}**	-	-	-1.2	**V**
Reverse recovery time	T_J = 25°C, IF =-5A, di/dt = 100A/μs	**t_{rr}**	-	27	-	**ns**
Reverse recovery charge		**Q_{rr}**	-	24	-	**nC**

Notes:
1、Calculated continuous current based on maximum allowable junction temperature.
2、Repetitive rating; pulse width limited by max. junction temperature.
3、The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.
4、The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C

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Ratings and Characteristic Curves

N-Electrical Characteristics Diagrams

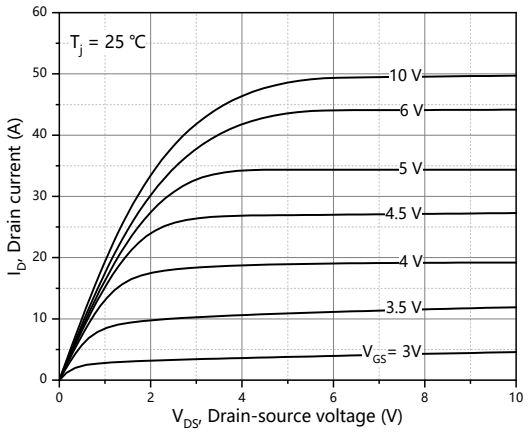


Figure 1, Typ. output characteristics

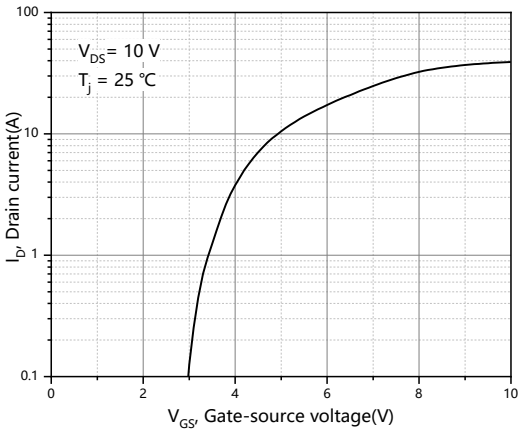


Figure 2, Typ. transfer characteristics

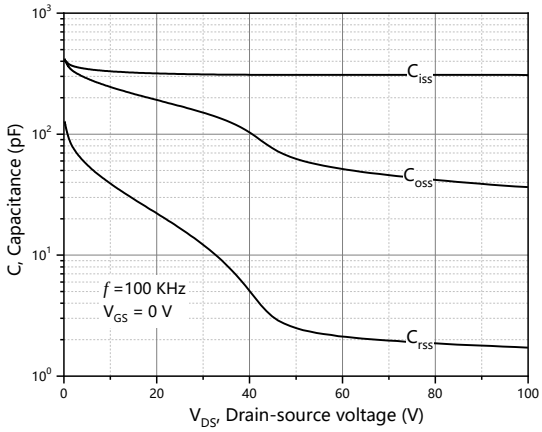


Figure 3, Typ. capacitances

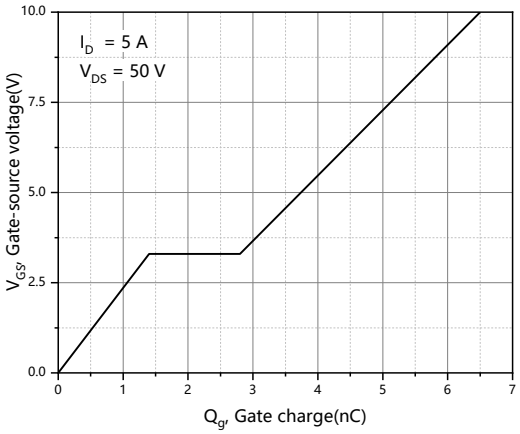


Figure 4, Typ. gate charge

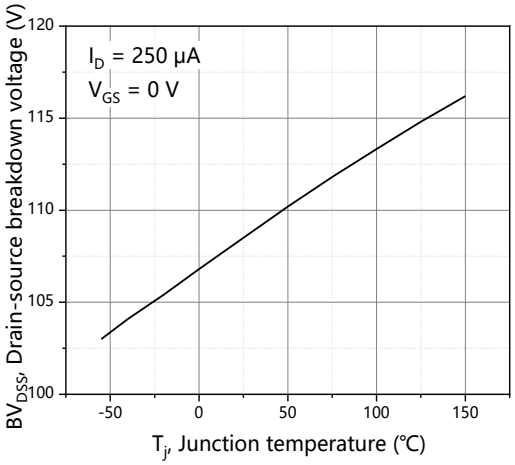


Figure 5, Drain-source breakdown voltage

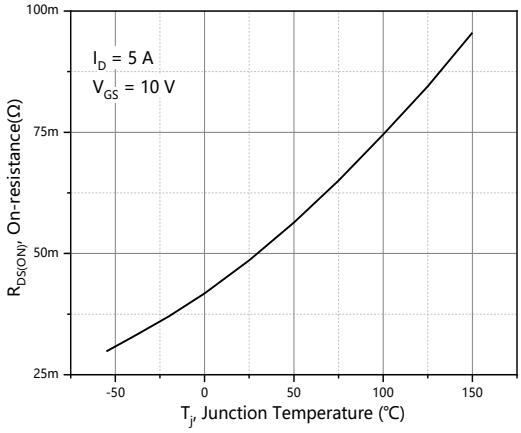


Figure 6, Drain-source on-state resistance

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Ratings and Characteristic Curves

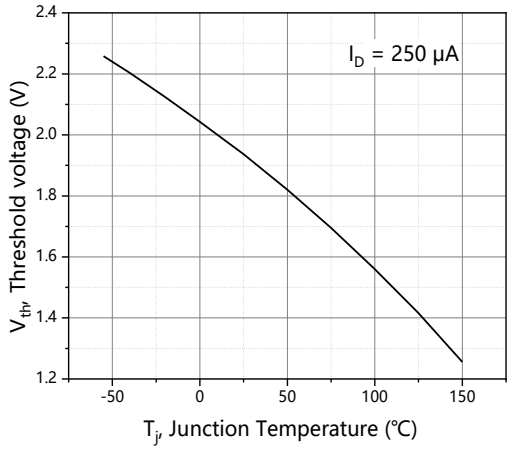


Figure 7, Threshold voltage

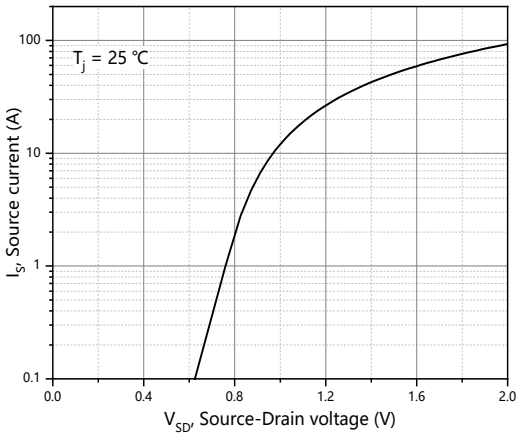


Figure 8, Forward characteristic of body diode

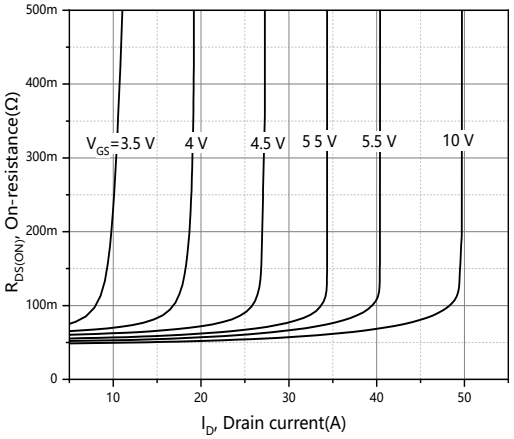


Figure 9, Drain-source on-state resistance

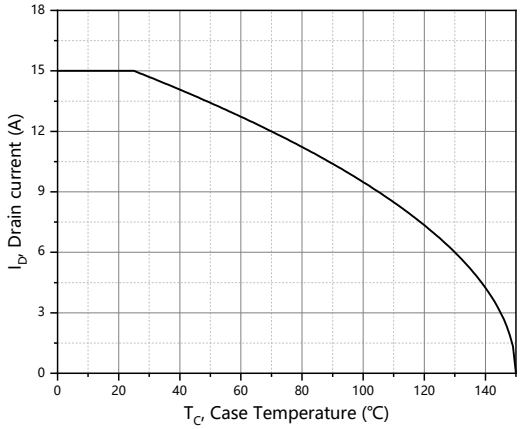


Figure 10, Drain current

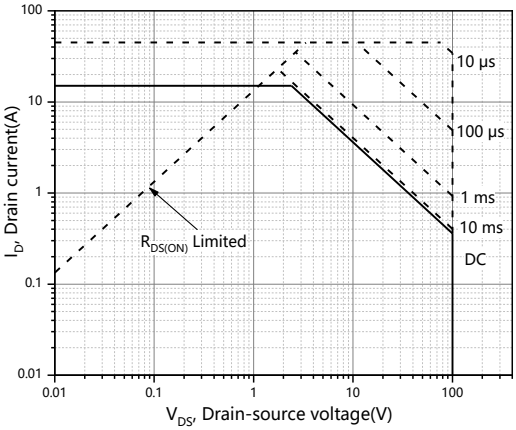


Figure 11, Safe operation area T_C=25 ℃

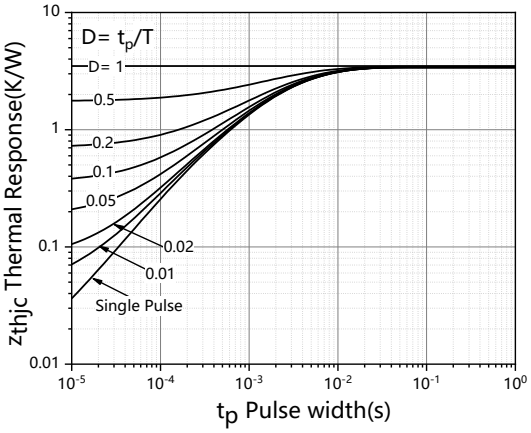


Figure 12, Max. transient thermal impedance

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P-Electrical Characteristics Diagrams

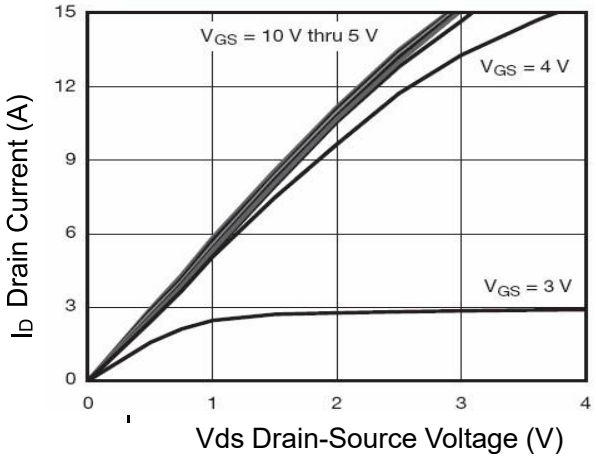


Figure 1 Output Characteristics

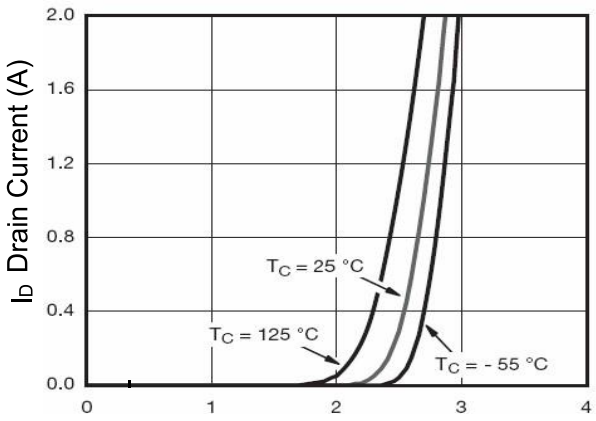


Figure 2 Transfer Characteristics

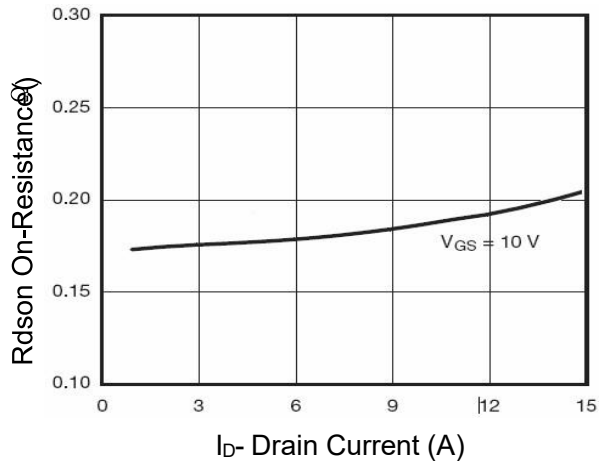


Figure 3 Rdson-Drain Current

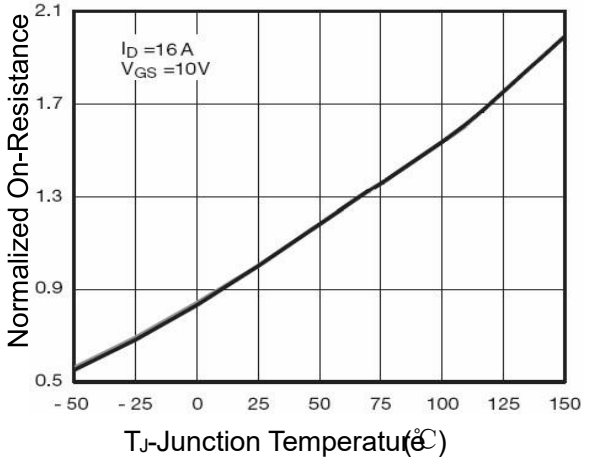


Figure 4 Rdson-JunctionTemperature

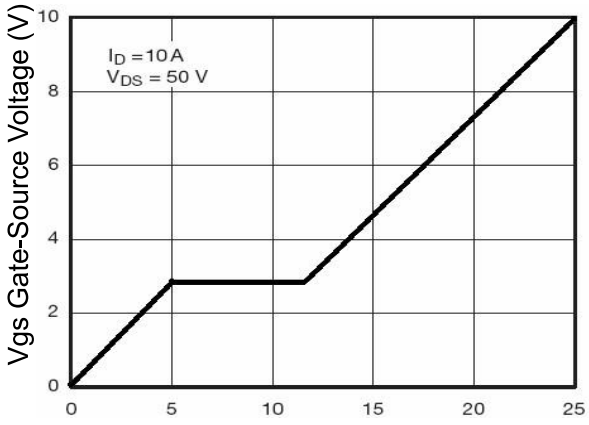


Figure 5 Gate Charge

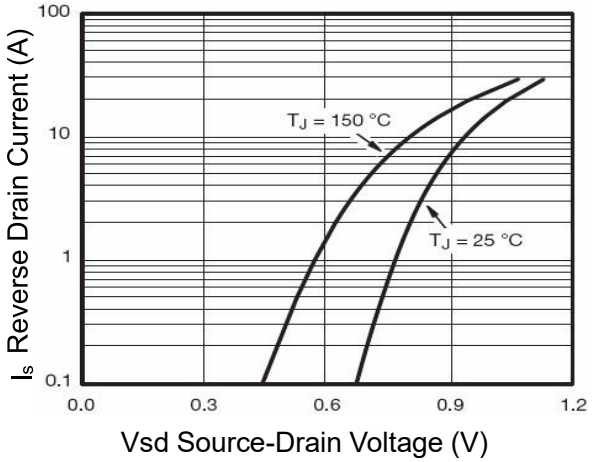


Figure 6 Source- Drain Diode Forward

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Ratings and Characteristic Curves

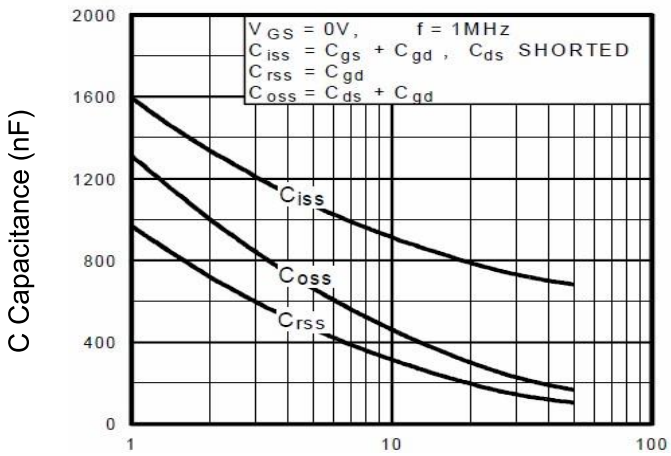


Figure 7 Capacitance vs Vds

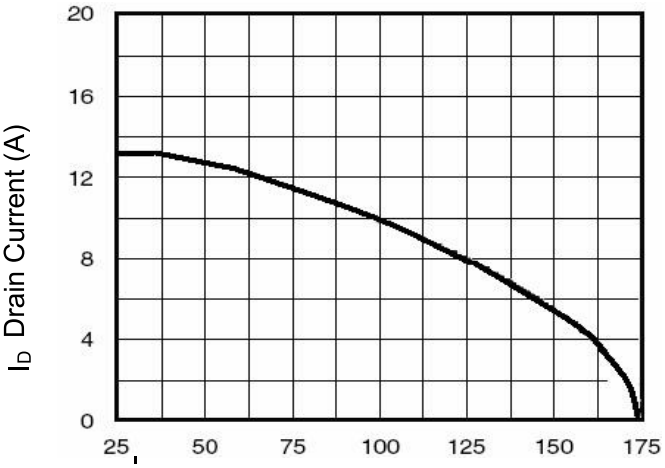


Figure 9 Drain Current vs Case Temperature

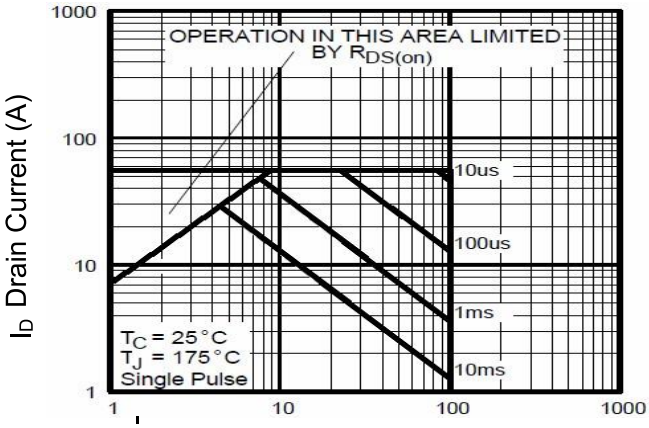


Figure 8 Safe Operation Area

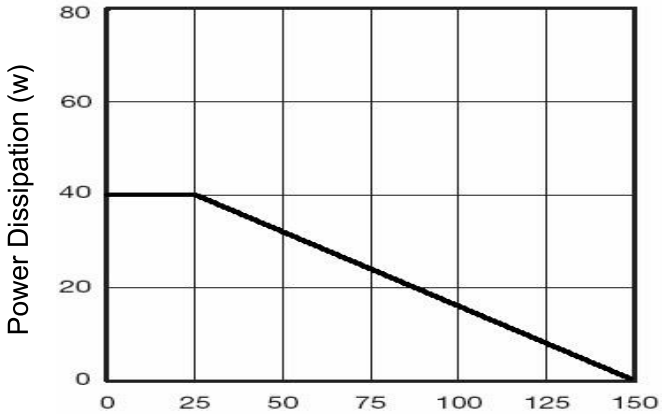


Figure 10 Power De-rating

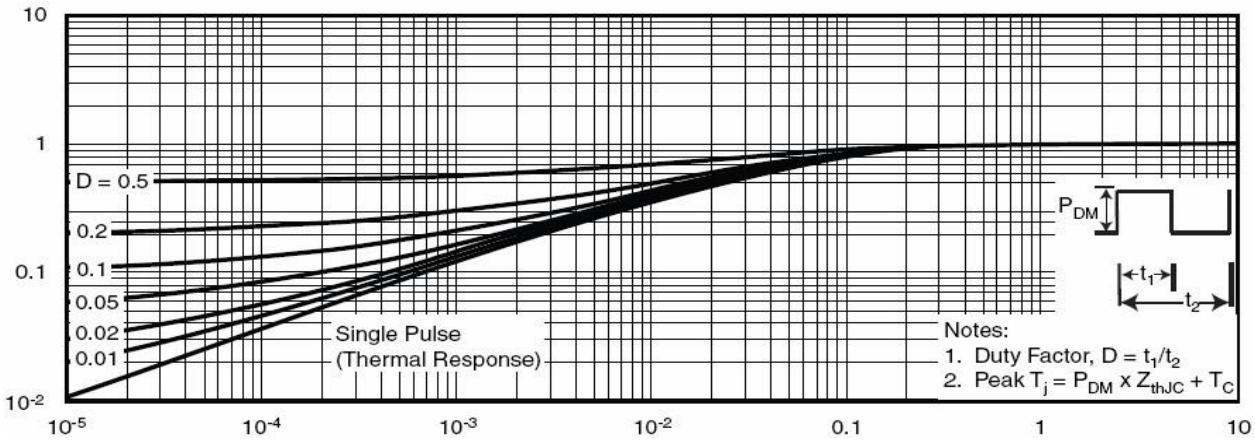
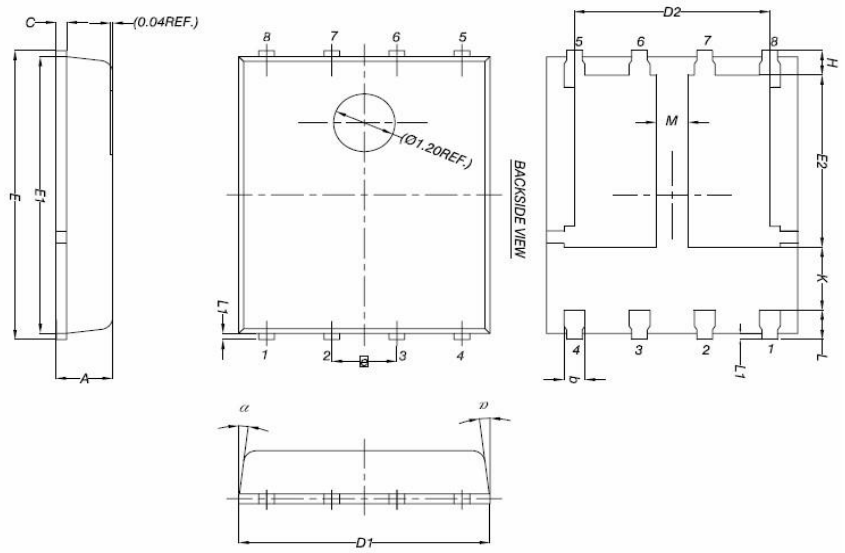


Figure 11 Normalized Maximum Transient Thermal

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Package Outline Dimensions Millimeters

PDFN5*6-8L



Symbol	Common		
	mm		
	Mim	Nom	Max
A	0.90	1.00	1.10
b	0.33	0.41	0.51
C	0.20	0.25	0.30
D1	4.80	4.90	5.00
D2	3.61	3.81	3.96
E	5.90	6.00	6.10
E1	5.66	5.76	5.83
E2	3.37	3.47	3.58
e	1.27BSC		
H	0.41	0.51	0.61
K	1.10	--	--
L	0.51	0.61	0.71
L1	0.06	0.13	0.20
M	0.50	--	--
a	0°	--	12°

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