



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	2.5m Ω @10V	100A
	3.5m Ω @4.5V	

Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

Application

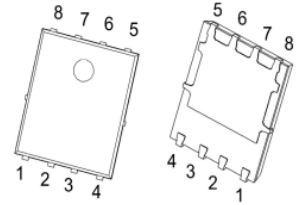
- Power Switching Application

MARKING:

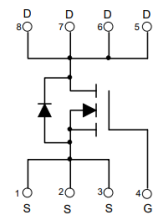


M033N04L = Device Code
XX = Date Code
Solid Dot = Green Indicator

PDFN5X6-8L



Schematic diagram



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	40	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	100 A
	$T_C = 100^\circ\text{C}$	I_D	85 A
Pulsed Drain Current ²	I_{DM}	340	A
Single Pulsed Avalanche Current ³	I_{AS}	43	A
Single Pulsed Avalanche Energy ³	E_{AS}	462	mJ
Power Dissipation ⁵	$T_C = 25^\circ\text{C}$	P_D	56 W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	2.2	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

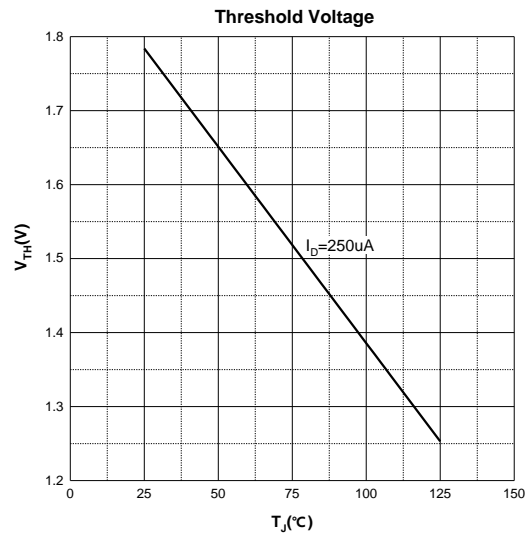
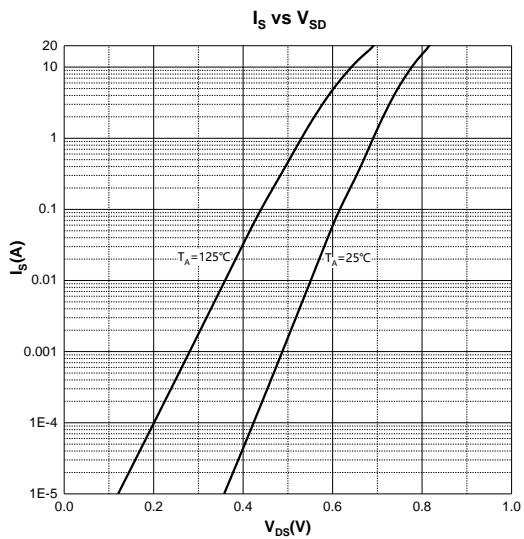
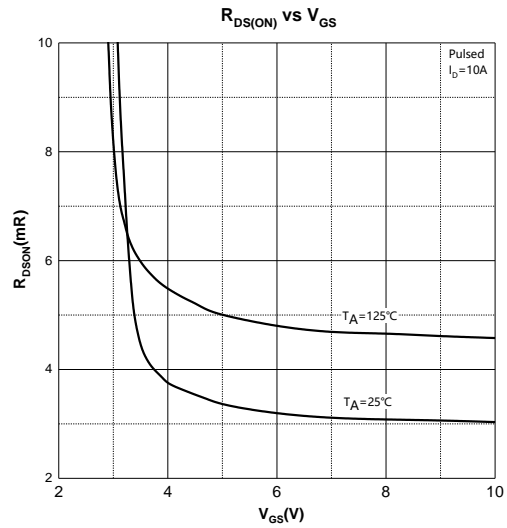
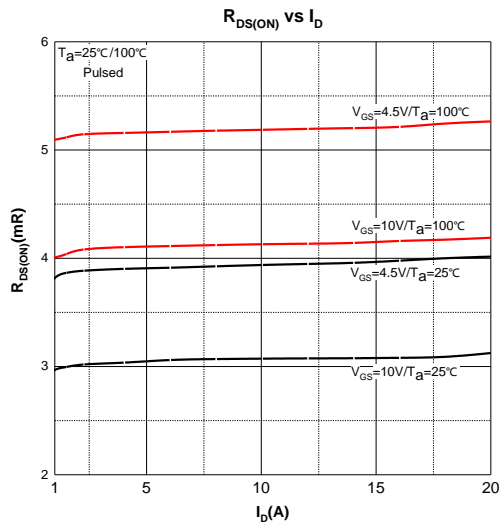
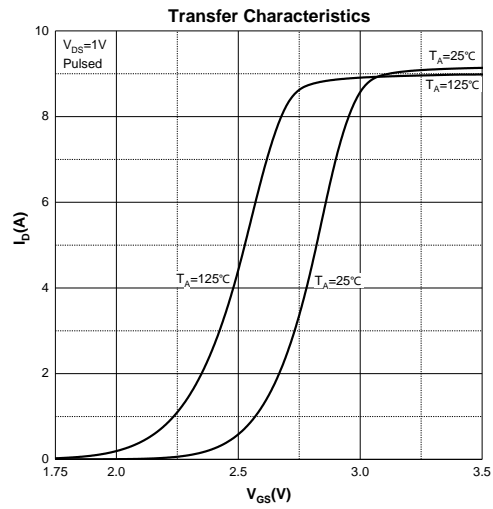
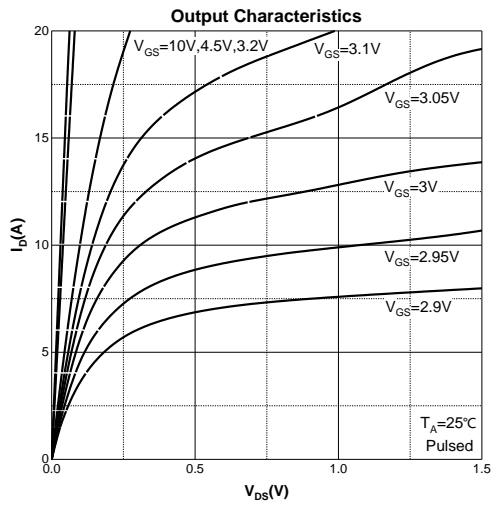
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

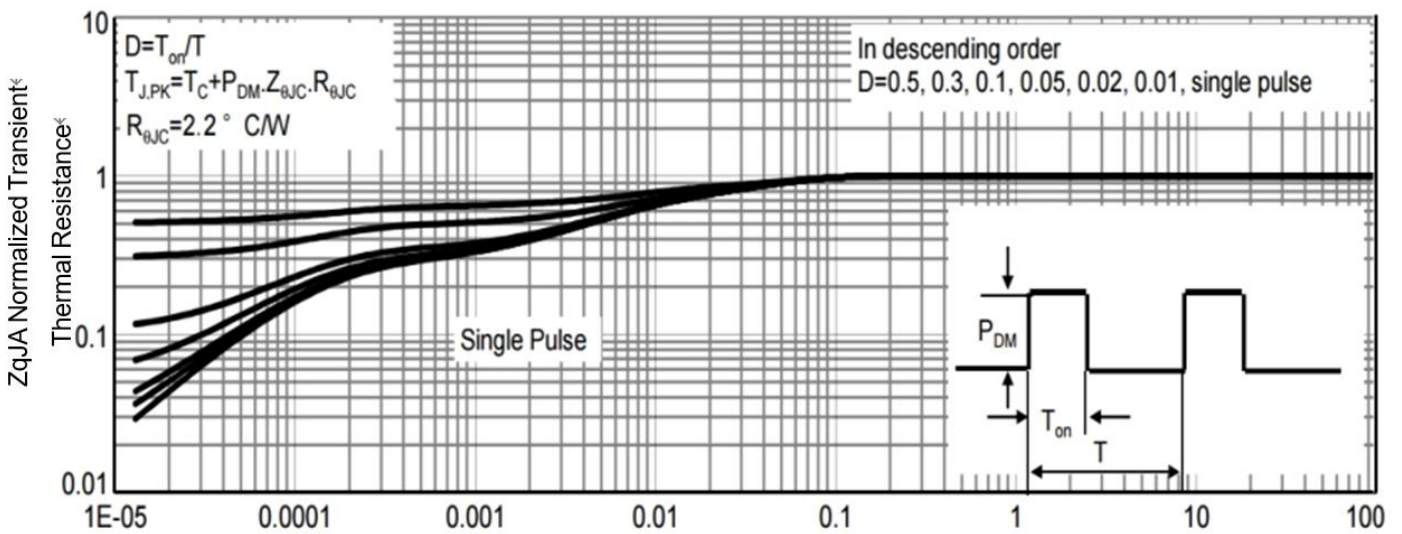
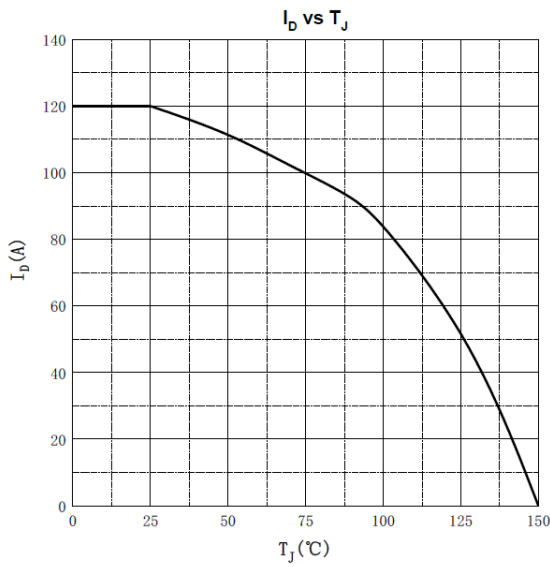
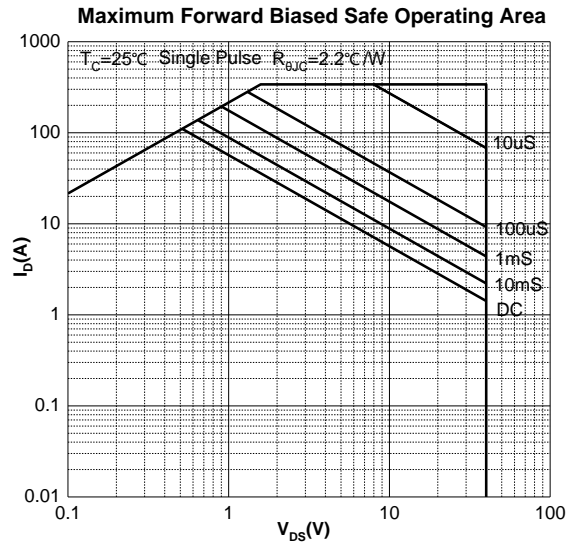
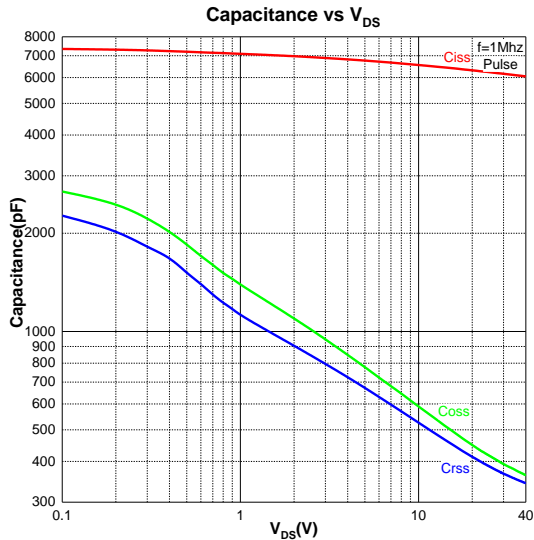
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.7	3.0	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 30A$		2.5	3.3	m Ω
		$V_{GS} = 4.5V, I_D = 10A$		3.5	5.3	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 20V, V_{GS} = 0V, f = 1MHz$		6573		pF
Output Capacitance	C_{oss}			451		
Reverse Transfer Capacitance	C_{rss}			411		
Gate Resistance	R_g	$V_{GS} = 0V, f = 1MHz$		0.94		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 20V, V_{GS} = 10V, I_D = 30A$		26.1		nC
Gate-source Charge	Q_{gs}			4.4		
Gate-drain Charge	Q_{gd}			8.8		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15V, I_D = 15A, R_G = 3.3\Omega, V_{GS} = 10V$		10.3		ns
Turn-on Rise Time	t_r			5.3		
Turn-off Delay Time	$t_{d(off)}$			44		
Turn-off Fall Time	t_f			9.2		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V

Notes :

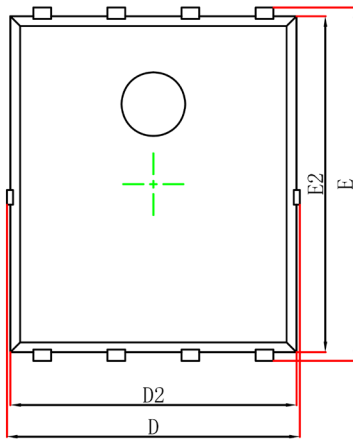
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 25V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 5.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.And device mounted on a large heatsink

Typical Characteristics

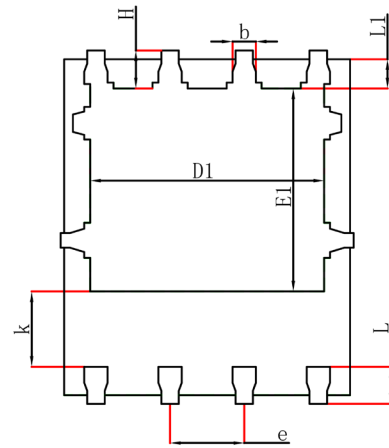




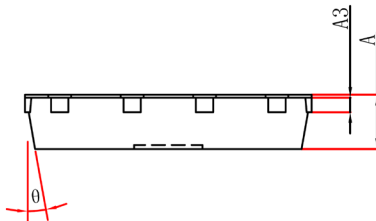
PDFN5X6-8L Package Information



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	1.10	0.035	0.043
A3	0.254REF		0.010REF	
D	4.700	5.260	0.185	0.207
E	5.750	6.250	0.226	0.246
D1	3.560	4.500	0.140	0.177
E1	3.180	3.660	0.125	0.144
D2	4.700	5.100	0.185	0.201
E2	5.600	6.000	0.220	0.236
k	1.100	-	0.043	-
b	0.300	0.500	0.012	0.020
e	1.270TYP		0.050TYP	
L	0.510	0.710	0.020	0.028
L1	0.424	0.576	0.017	0.023
H	0.510	0.710	0.020	0.028
θ	8°	12°	8°	12°