

Product Summary

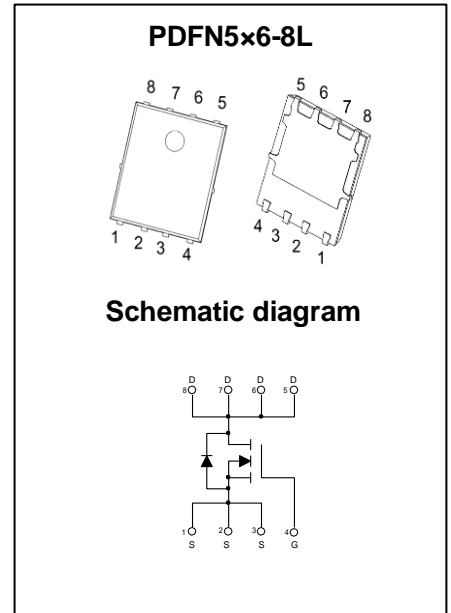
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	1.7m Ω @10V	110A
	2.4m Ω @4.5V	

Feature

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

Application

- Power Switching Application
- DC/DC Converters



MARKING:



M019N03N = Device Code
 XX = Date Code
 Solid Dot = Green Indicator

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

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	30	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	110 A
	$T_C = 100^\circ\text{C}$	I_D	85 A
Pulsed Drain Current ²	I_{DM}	440	A
Single Pulsed Avalanche Current ³	I_{AS}	48	A
Single Pulsed Avalanche Energy ³	E_{AS}	576	mJ
Power Dissipation ⁵	$T_C = 25^\circ\text{C}$	P_D	144 W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.04	$^\circ\text{C/W}$
Junction Temperature	T_J	175	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +175	$^\circ\text{C}$

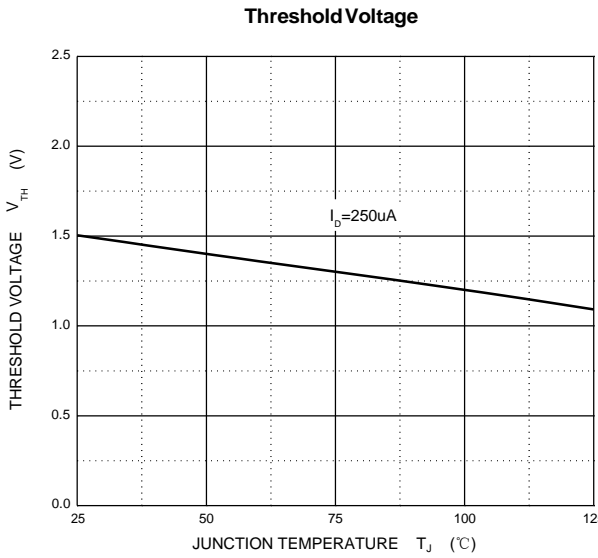
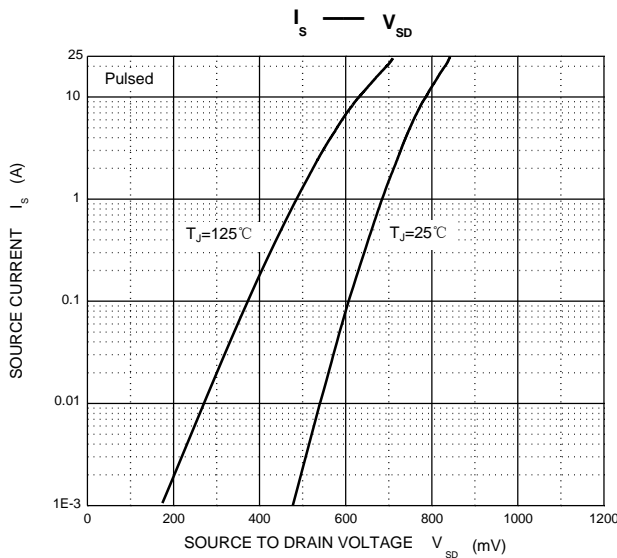
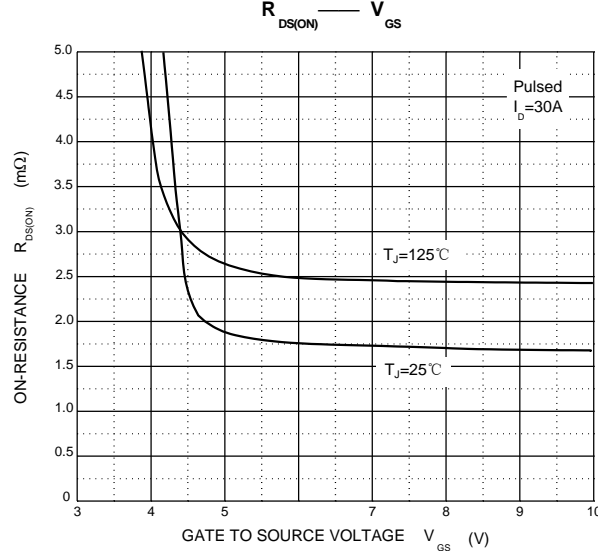
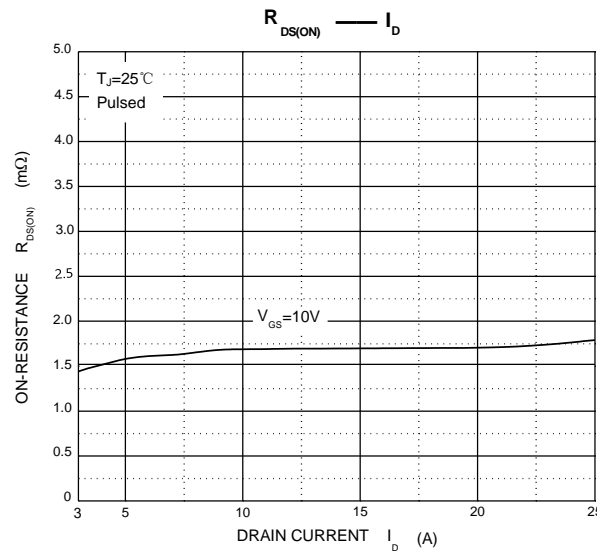
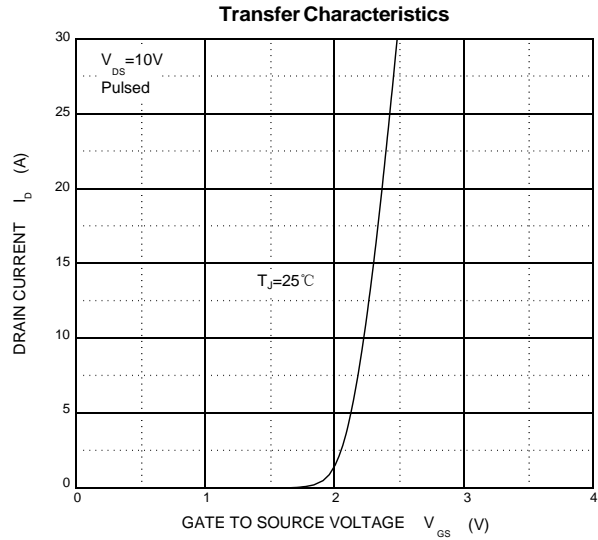
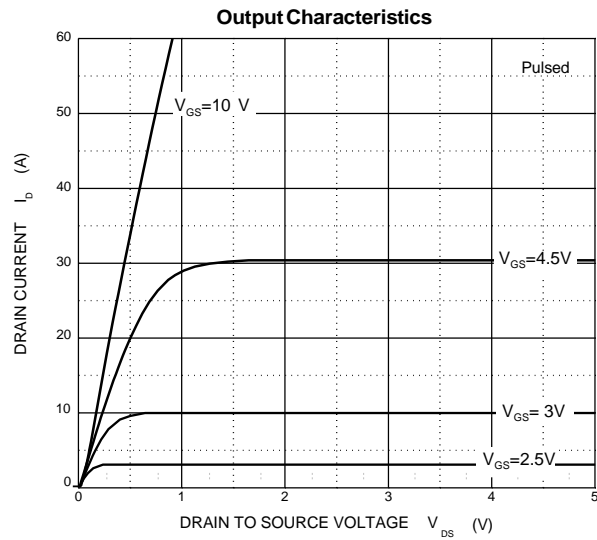
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			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	1.5	3.0	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		1.7	2.2	m Ω
		$V_{GS} = 4.5V, I_D = 10A$		2.4	3.0	
Forward Transconductance	g_{FS}	$V_{DS} = 10V, I_D = 10A$	20			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		5150		pF
Output Capacitance	C_{oss}			720		
Reverse Transfer Capacitance	C_{rss}			687		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		1.0		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 24A$		119		nC
Gate-source Charge	Q_{gs}			13.7		
Gate-drain Charge	Q_{gd}			31.7		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, R_L = 0.75\Omega$ $R_G = 3\Omega$		16		ns
Turn-on Rise Time	t_r			12		
Turn-off Delay Time	$t_{d(off)}$			78		
Turn-off Fall Time	t_f			30		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V
Diode Continuous Forward Current	I_S	$T_C = 25^\circ\text{C}$			70	A
Diode Reverse Recovery Time	t_{rr}	$I_F = 20A, di/dt = 500A/ms$		18		ns

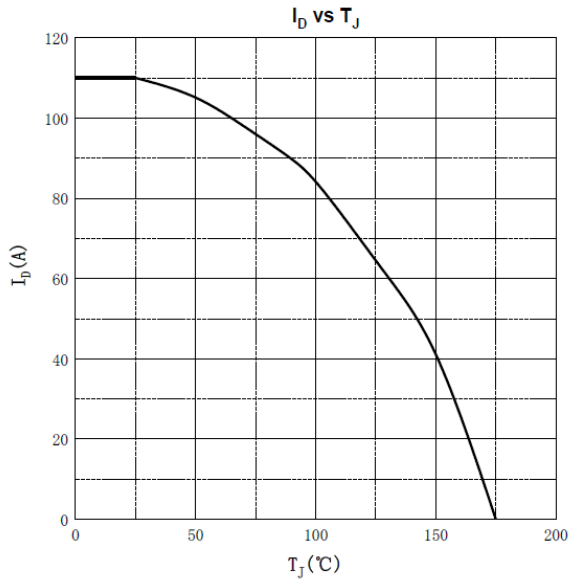
Notes :

- 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
- 6.Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

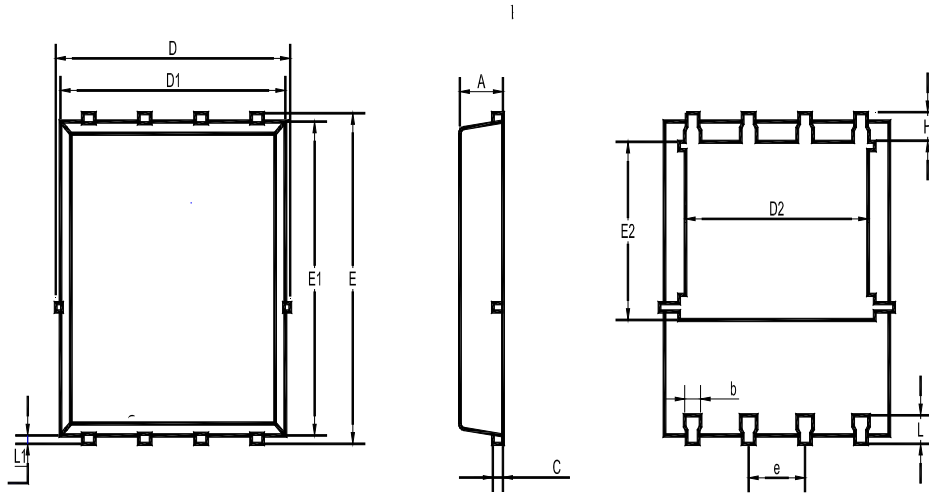
Typical Characteristics



Typical Characteristics



PDFN5x6-8L Package Information



UNIT		b	C	D	D1	D2	E	E1	E2	e	L	L1	H
mm		1.10	0.45	5.076	4.976	4.11	6.076	5.826	3.575	1.2TYP	0.686	0.2	0.701
		0.9	0.35	4.944	4.824	3.91	5.924	5.674	3.375		0.534	0.06	0.549