



Product Summary

V _{(BR)DSS}	R _{DS(on)TYP}	I _D
30V	1.05mΩ@10V	180A
	1.4mΩ@4.5V	

Feature

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

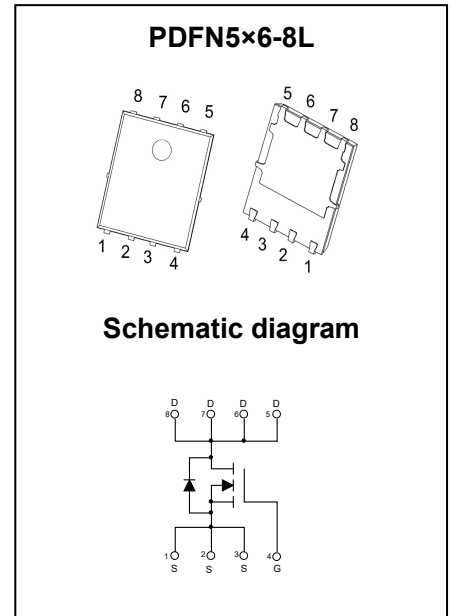
Application

- Power Switching Application

MARKING:



M014N03N = Device Code
XX = Date Code
Solid Dot = Green Indicator



ABSOLUTE MAXIMUM RATINGS (T_A = 25°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	I _D	T _C = 25°C	180	A
Continuous Drain Current ⁶		T _A = 25°C	67	A
Pulsed Drain Current ²	I _{DM}	540	A	
Single Pulsed Avalanche Current ³	I _{AS}	67	A	
Single Pulsed Avalanche Energy ³	E _{AS}	1122	mJ	
Power Dissipation ⁵	P _D	T _C = 25°C	119	W
Power Dissipation ⁶		T _A = 25°C	2.5	W
Thermal Resistance from Junction to Ambient ⁶	R _{θJA}	50	°C/W	
Thermal Resistance from Junction to Case	R _{θJC}	1.05	°C/W	
Junction Temperature	T _J	150	°C	
Storage Temperature	T _{STG}	-55~ +150	°C	

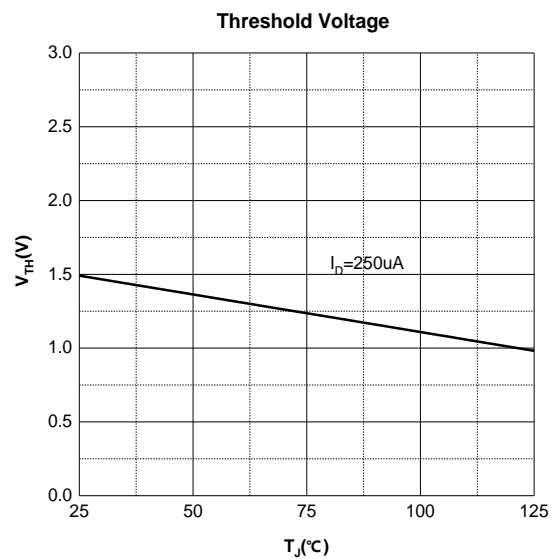
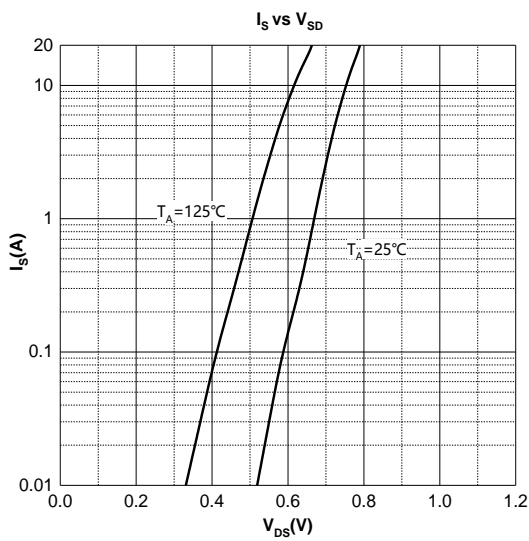
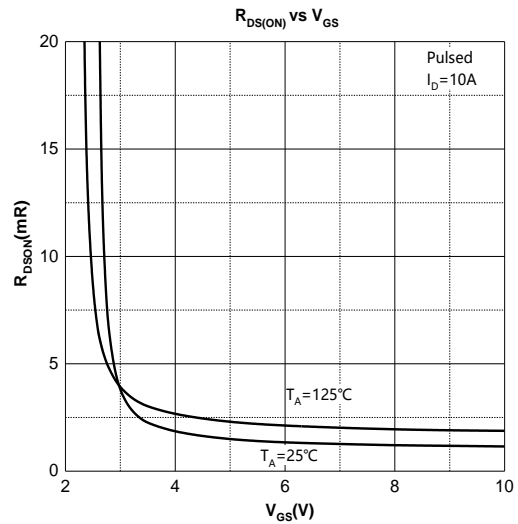
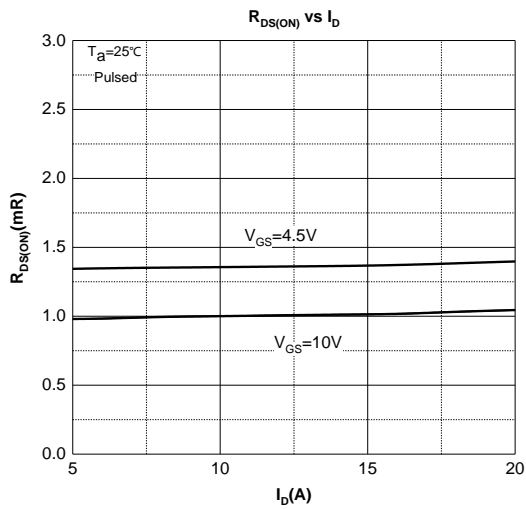
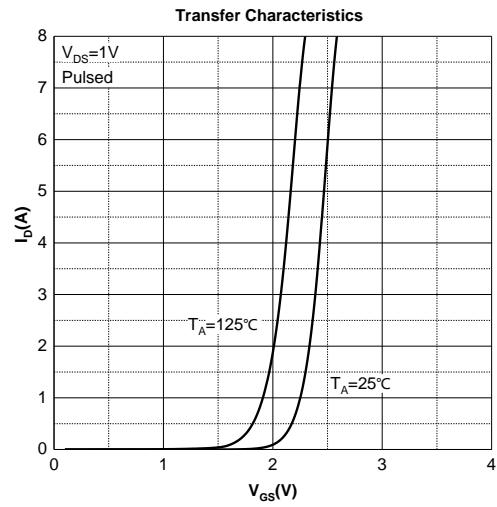
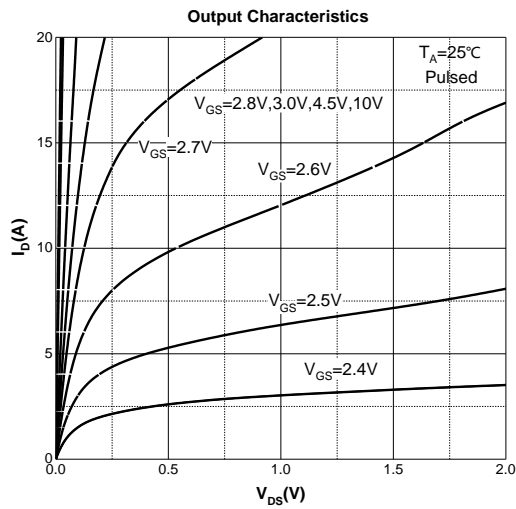
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

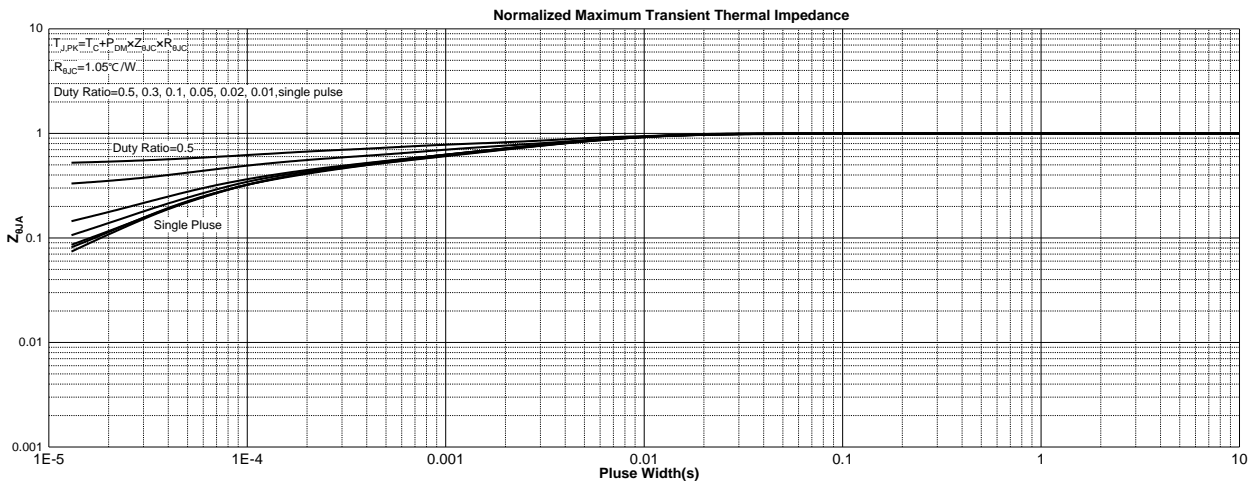
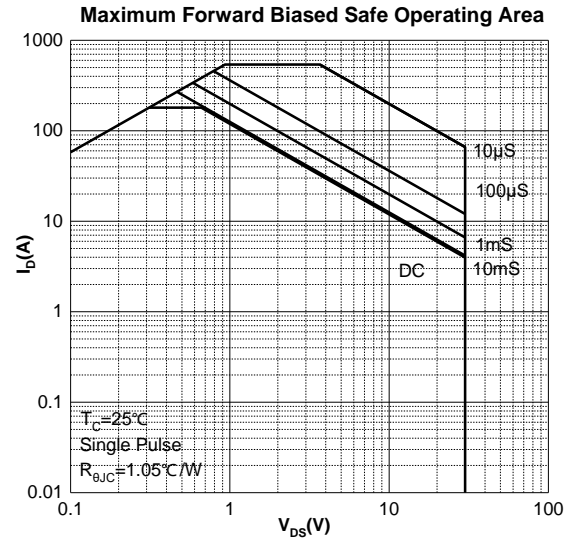
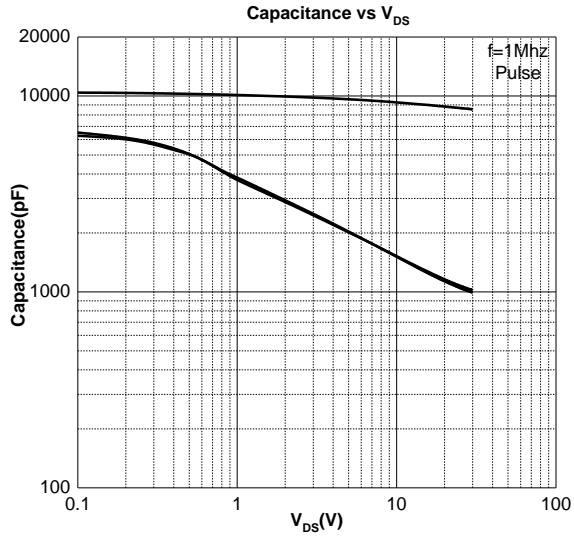
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 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	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 30A$		1.05	1.4	m Ω
		$V_{GS} = 4.5V, I_D = 10A$		1.4	1.9	
Forward Transconductance	g_{FS}	$V_{DS} = 10V, I_D = 10A$	20			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		9100		pF
Output Capacitance	C_{oss}			1325		
Reverse Transfer Capacitance	C_{rss}			1220		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		1.2		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 20A$		123		nC
Gate-source Charge	Q_{gs}			29.9		
Gate-drain Charge	Q_{gd}			46.5		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, R_L = 3\Omega$ $R_G = 3\Omega$		97.2		ns
Turn-on Rise Time	t_r			195		
Turn-off Delay Time	$t_{d(off)}$			240		
Turn-off Fall Time	t_f			102		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V

Notes :

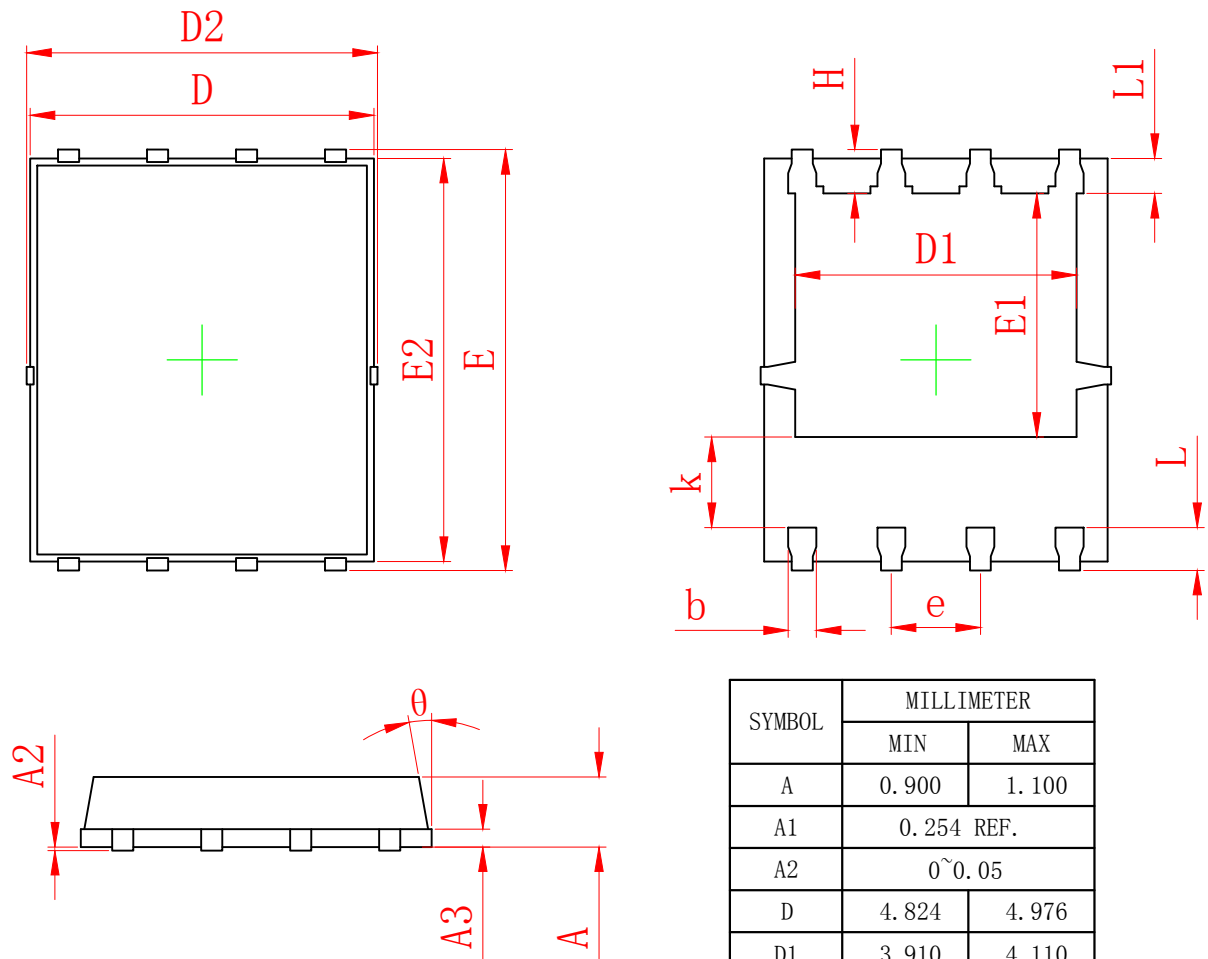
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 25V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq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





PDFN5×6-8L Package Information



SYMBOL	MILLIMETER	
	MIN	MAX
A	0.900	1.100
A1	0.254 REF.	
A2	0~0.05	
D	4.824	4.976
D1	3.910	4.110
D2	4.944	5.076
E	5.924	6.076
E1	3.375	3.575
E2	5.674	5.826
b	0.350	0.450
e	1.270 TYP.	
L	0.534	0.686
L1	0.424	0.576
k	1.190	1.390
H	0.549	0.701
θ	8°	12°