

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	2.3m Ω @10V	130A

Feature

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

Application

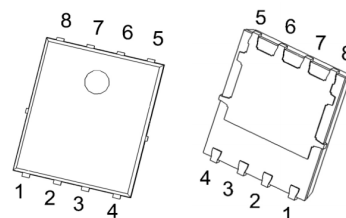
- DC/DC Converter
- Synchronous Rectification
- High-Frequency Switch

MARKING:

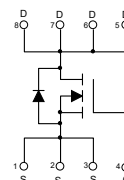


T030N06L = Device Code
XX = Date Code
Solid Dot = Green Indicator

PDFN5×6-8L



Schematic diagram



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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	60	V
Gate - Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	130	A
	$T_C = 100^\circ\text{C}$	I_D	90	A
Pulsed Drain Current ²		I_{DM}	520	A
Single Pulsed Avalanche Current ³		I_{AS}	35	A
Single Pulsed Avalanche Energy ³		E_{AS}	306	mJ
Power Dissipation ⁵		P_D	156	W
$T_C = 25^\circ\text{C}$				
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.8	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

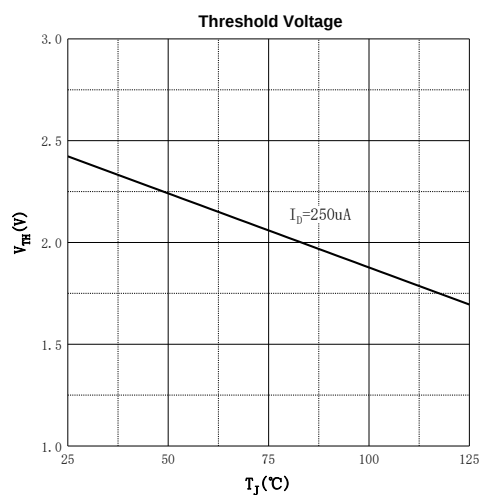
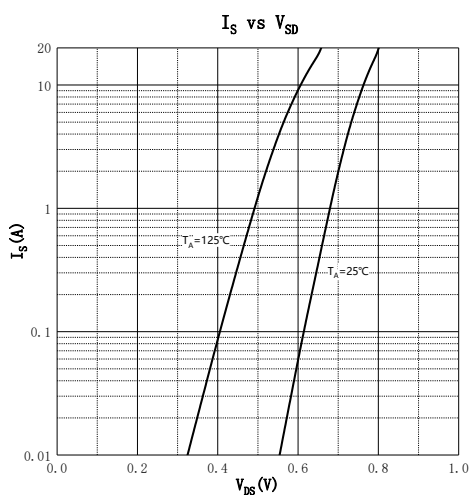
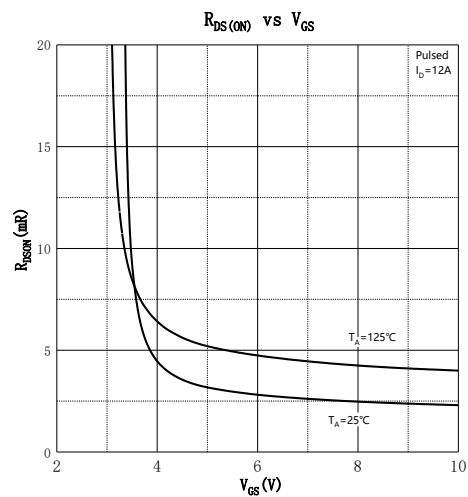
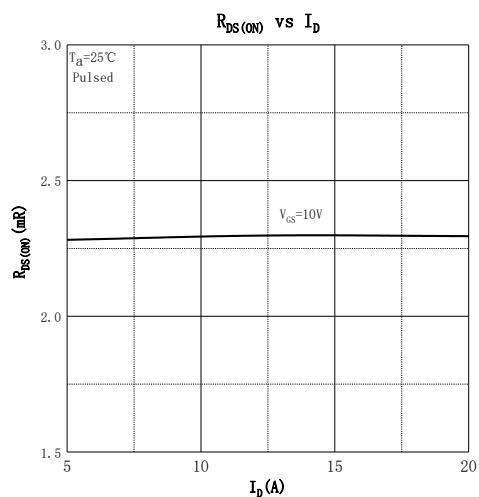
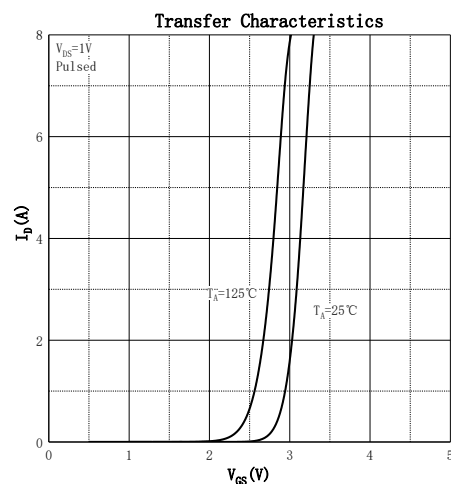
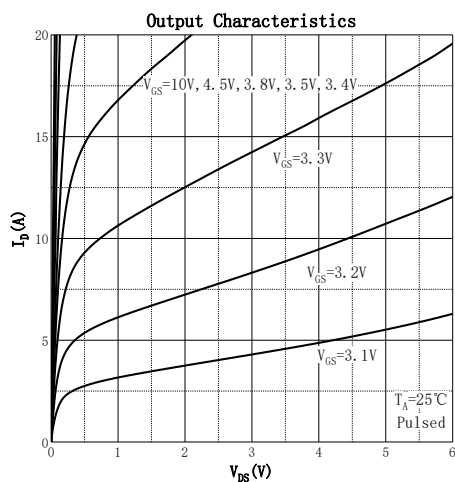
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

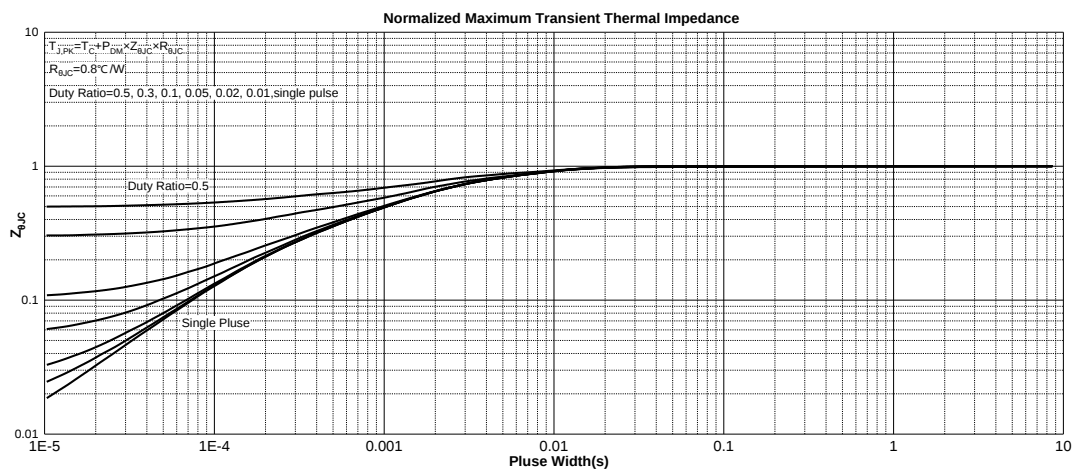
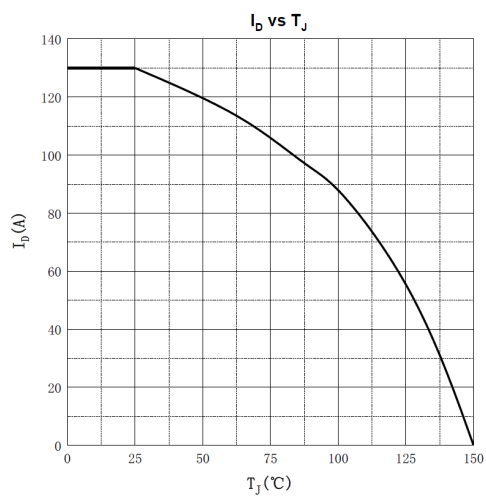
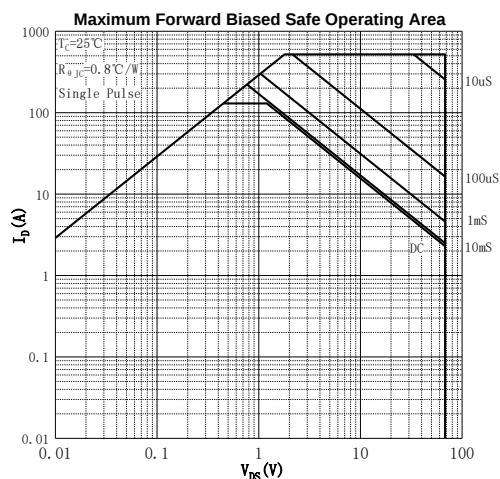
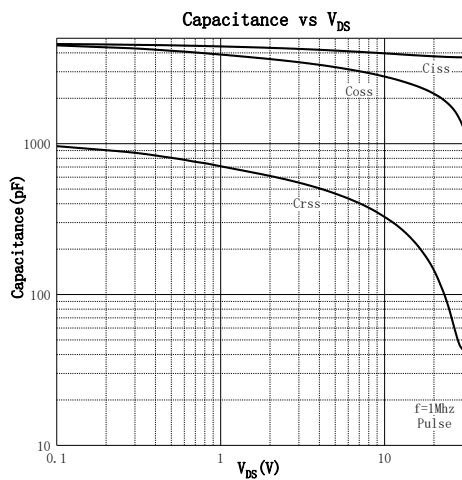
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics ⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	2.4	3	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 12A$		2.3	3	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = 5V, I_D = 10A$		30		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$		3788		pF
Output Capacitance	C_{oss}			1075		
Reverse Transfer Capacitance	C_{rss}			46		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		2		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 20A$		50		nC
Gate-source Charge	Q_{gs}			12		
Gate-drain Charge	Q_{gd}			14		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V, R_L = 1.5\Omega$ $R_G = 3\Omega$		20		ns
Turn-on Rise Time	t_r			6.5		
Turn-off Delay Ttime	$t_{d(off)}$			62		
Turn-off Fall Time	t_f			24		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 12A$			1.2	V

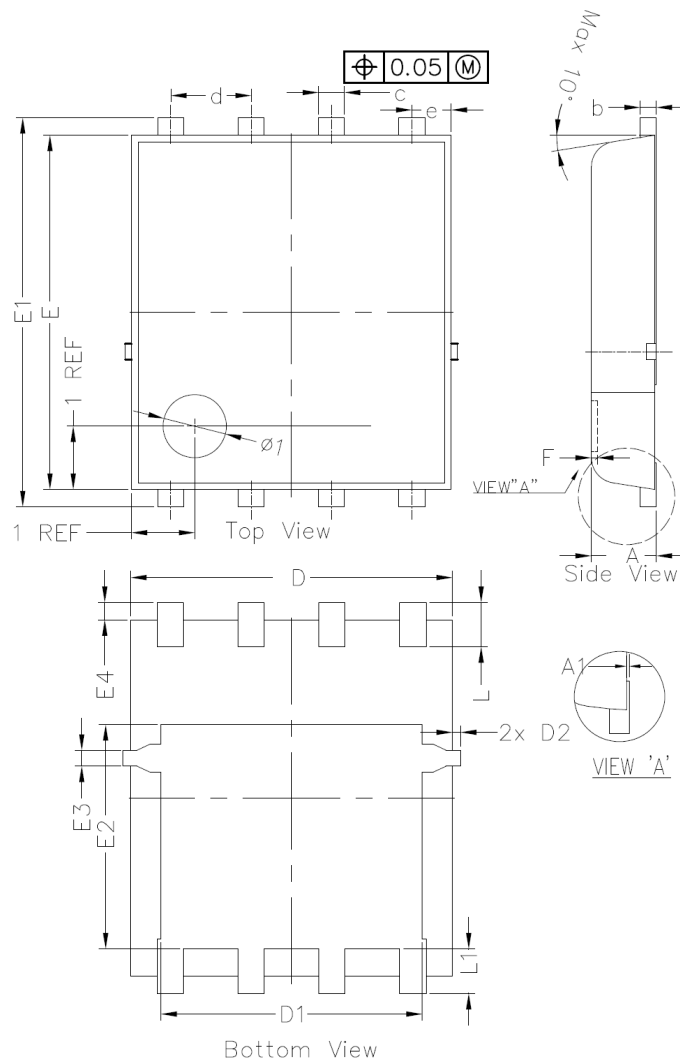
Notes :

- 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: $V_{DD} = 30V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ 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	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.050	0.000	0.002
b	0.246	0.312	0.010	0.012
c	0.310	0.510	0.012	0.020
d	1.270BSC		0.050BSC	
D	4.950	5.150	0.195	0.203
D1	4.000	4.200	0.157	0.165
D2	-	0.125	-	0.005
e	0.620BSC		0.024BSC	
E	5.500	5.700	0.217	0.224
E1	6.050	6.250	0.238	0.246
E2	3.425	3.625	0.135	0.143
E3	0.150	0.350	0.006	0.014
E4	0.175	0.375	0.007	0.015
F	-	0.100	-	0.004
L	0.500	0.700	0.020	0.028
L1	0.600	0.800	0.024	0.031