

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
150V	13mΩ@10V	50A

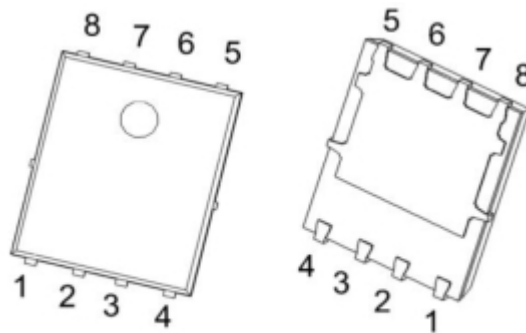
Feature

- Low $R_{DS(on)}$ & F_{OM}
- Extremely low switching loss
- Excellent stability and uniformity
- Fast switching and soft recovery

Applications

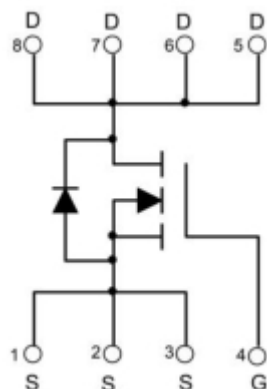
- Consumer electronic power supply
- Motor control Synchronous rectification
- Isolated DC/DC convertor
- Invertors

Package

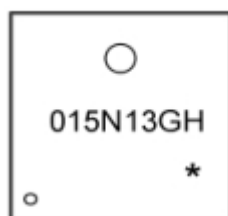


PDFN5X6-8L

Circuit diagram



Marking



015N13GH : Product code
* : Month code

Absolute maximum ratings

($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous drain current ¹ , $T_C=25^{\circ}\text{C}$	I_D	50	W
Pulsed Drain Current	I_{DM}	200	A
Power Dissipation ($T_C = 25^{\circ}\text{C}$)	P_D	160	W
Single Pulse Avalanche Energy ¹	E_{AS}	480	mJ
Thermal Resistance Junction- Case	$R_{\theta JC}$	0.78	$^{\circ}\text{C}/\text{W}$
Operation and storage temperature	T_{STG}, T_J	-55~ +150	$^{\circ}\text{C}$

Electrical characteristics

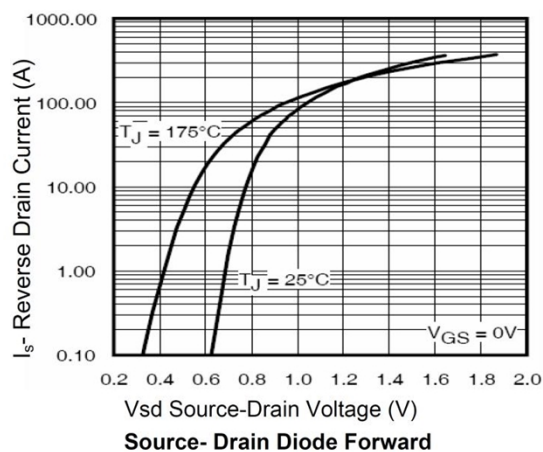
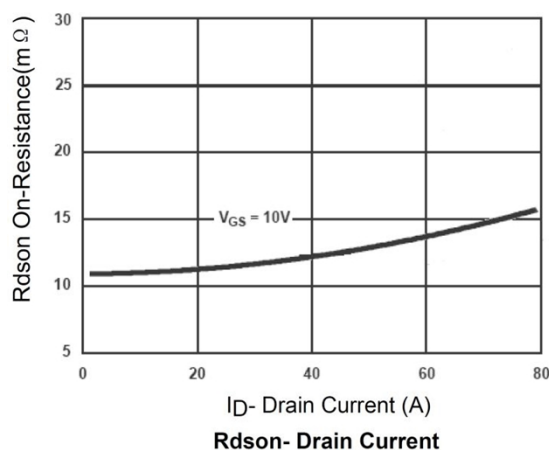
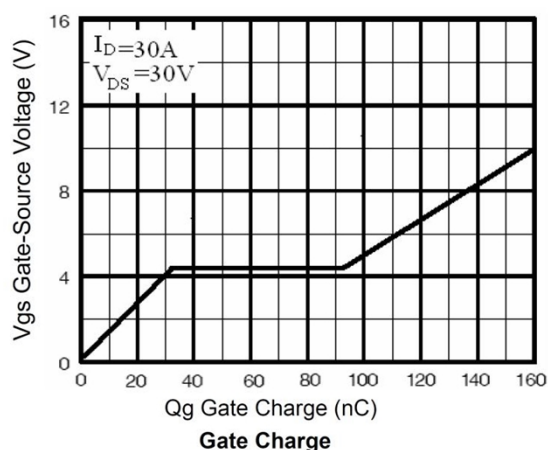
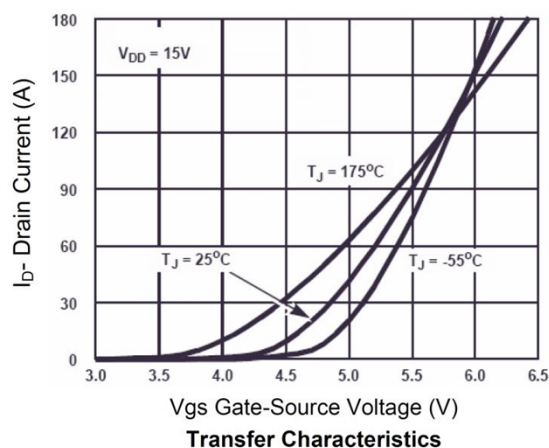
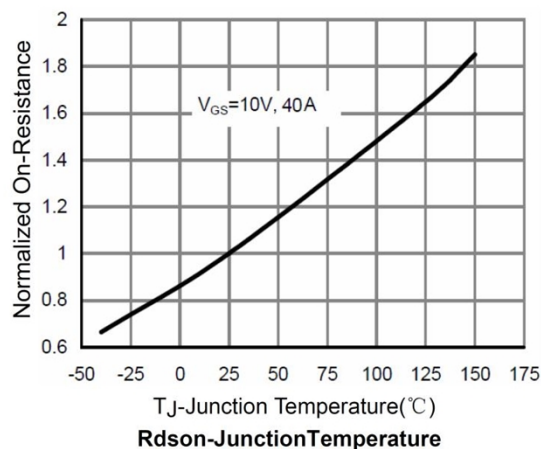
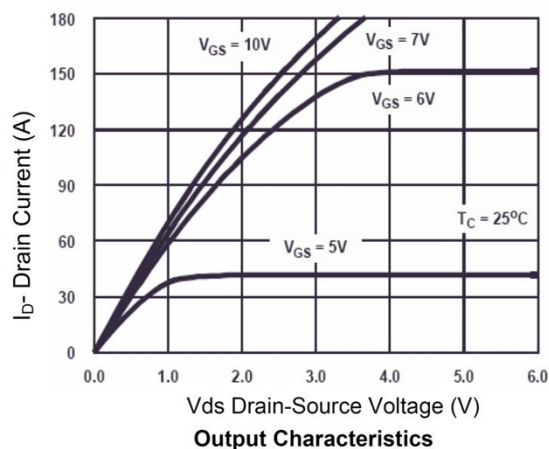
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

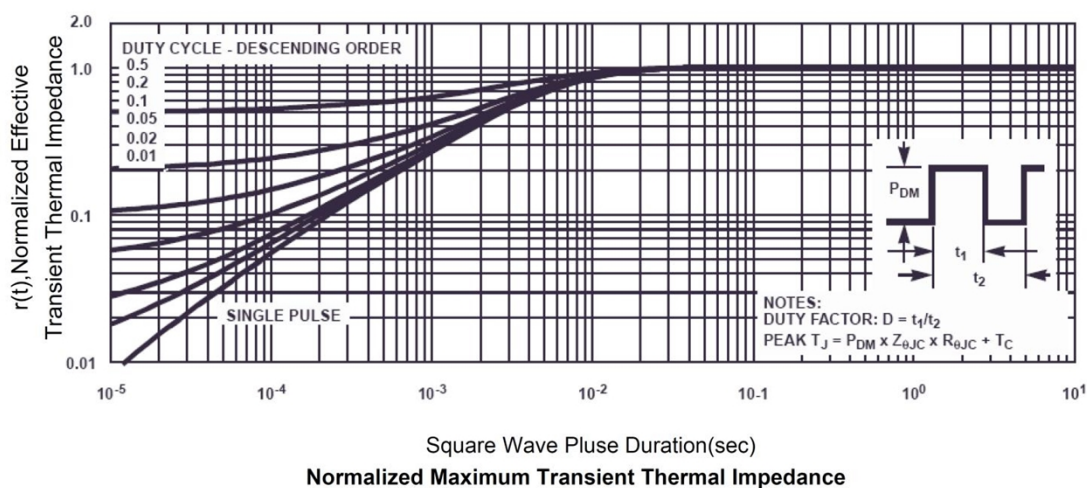
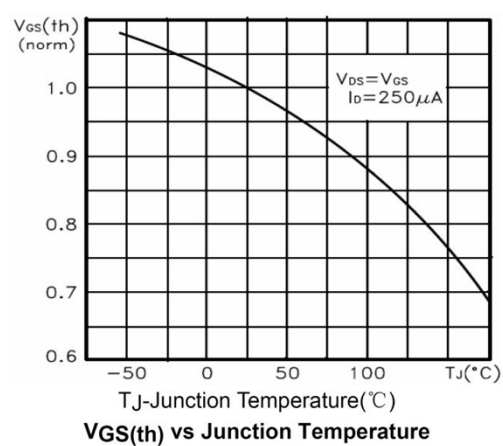
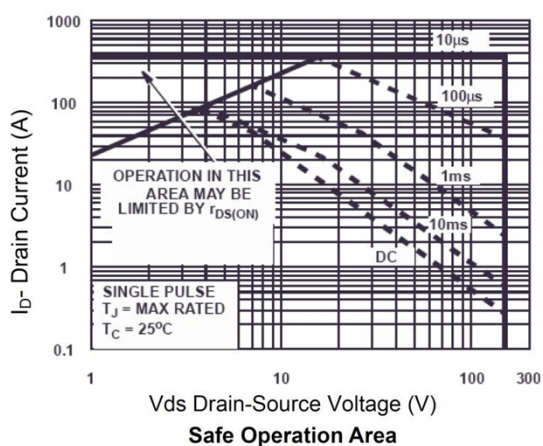
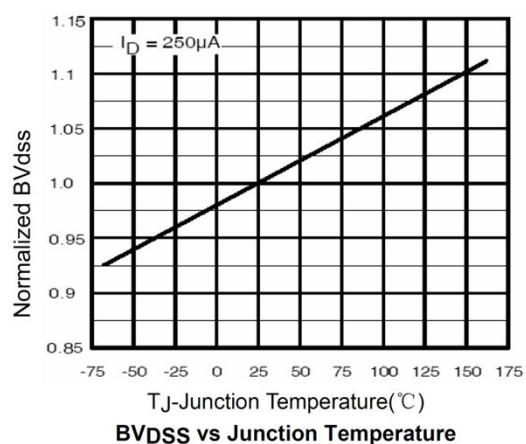
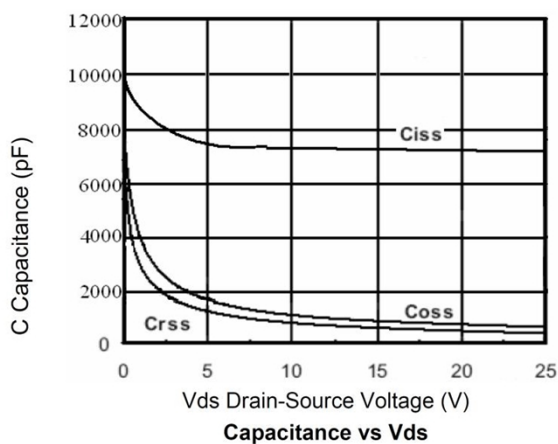
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	150			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 120V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 0.1	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		13	16	Ω
Dynamic characteristics ⁴						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		6998		pF
Output Capacitance	C_{oss}			422		
Reverse Transfer Capacitance	C_{rss}			352		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	$V_{GS} = 10V, V_{DS} = 30V, R_G = 2.5\Omega, I_D = 2A$		22.1		nS
Rise Time	T_r			5.2		
Turn-Off Delay Time	$T_{d(off)}$			44		
Fall Time	T_f			8.4		
Total Gate Charge(4.5V)	Q_g	$I_D = 20A, V_{DS} = 30V, V_{GS} = 10V$		160		nC
Gate-Source Charge	Q_{gS}			36		
Gate-Drain Charge	Q_{gd}			68		
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	$I_S = 1A, V_{GS} = 0V$			1.2	V
Reverse recovery time	t_{rr}	$I_S = 12A, di/dt = 100A/\mu s$		102.9		ns
Reverse recovery charge	Q_{rr}			379		nC
Peak reverse recovery current	I_{rrm}			6.4		A

Note :

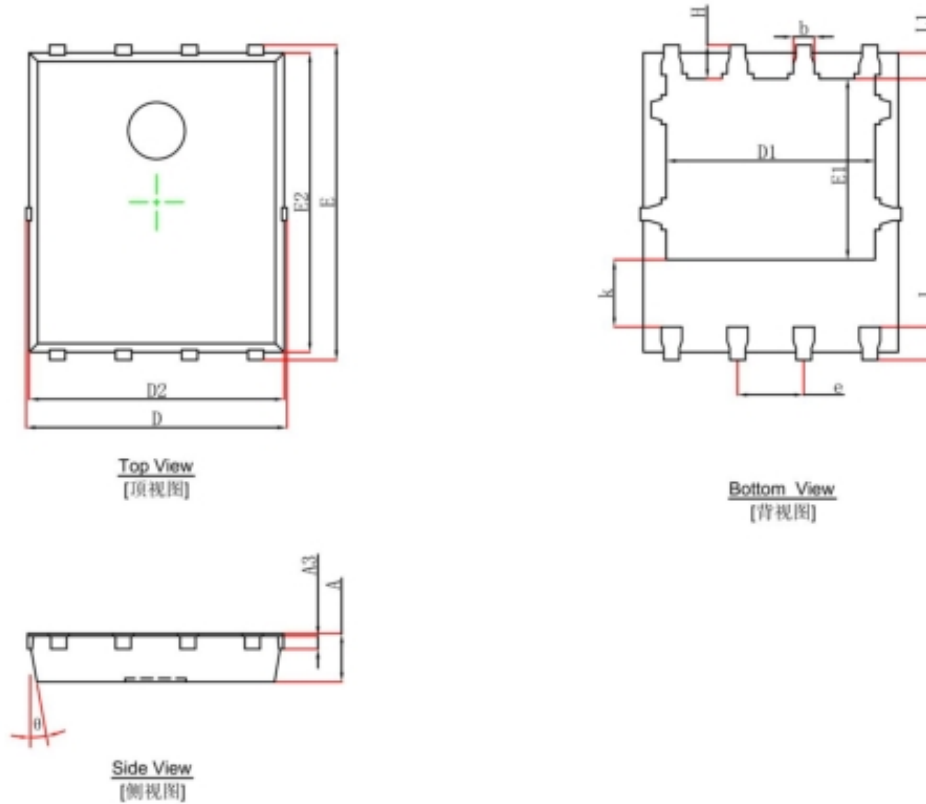
1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. P_d is based on max. junction temperature, using junction-case thermal resistance.
4. $V_{DD}=50V, V_G=10V, R_G=25\Omega, L=0.5\text{ mH}$, starting $T_J=25^{\circ}\text{C}$.

Typical Characteristics





PDFN5X6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°