

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	2.2mΩ@10V	115A
	4mΩ@4.5V	

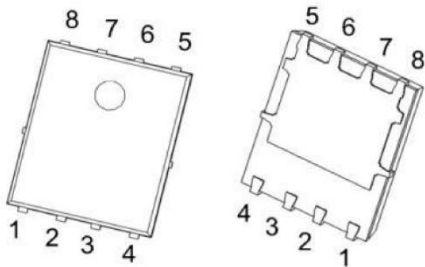
Feature

- Advanced Trench Technology
- Provide Excellent RDS(ON) and Low Gate Charge

Application

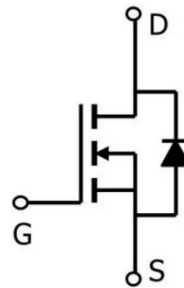
- Load Switch
- PWM Application

Package

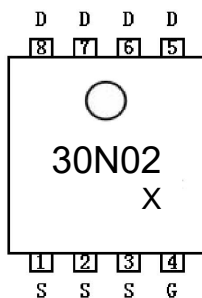


PDFN5X6-8L

Circuit diagram



Marking



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 (T _C =25°C)	I _D	115	A
Pulsed Drain Current ¹⁾	I _{DM}	460	A
Power Dissipation (T _C =25°C)	P _D	110	W
Single pulse avalanche energy ²⁾	E _{AS}	650	mJ
Thermal Resistance, Junction-to-Case	R _{θJC}	1.13	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	1.5	2.5	V
Drain-source on-resistance ³⁾	R _{DS(on)}	V _{GS} = 10V, I _D = 30A		1.7	2.2	mΩ
		V _{GS} = 4.5V, I _D = 20A		3.0	4.0	
Dynamic characteristics⁴⁾						
Input Capacitance	C _{iss}	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz		3400		pF
Output Capacitance	C _{oss}			356		
Reverse Transfer Capacitance	C _{rss}			308		
Total Gate Charge	Q _g	V _{DS} = 15V, V _{GS} = 10V, I _D = 30A		70		nC
Gate-Source Charge	Q _{gs}			12		
Gate-Drain Charge	Q _{gd}			16.3		
Turn-on delay time	t _{d(on)}	V _{DS} = 15V, V _{GS} = 4.5V, R _{GEN} = 1.8Ω, I _D = 30A		11		nS
Turn-on rise time	t _r			120		
Turn-off delay time	t _{d(off)}			25		
Turn-off fall time	t _f			60		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{SD}	V _{GS} = 0V, I _S = 1A			1.2	V

Notes:

- 1) Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
- 2) EAS condition: T_J = 25°C, V_G = 10V, L = 0.5mH, R_g = 25Ω.
- 3) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 4) Guaranteed by design, not subject to production

Typical Characteristics

Figure 1: Output Characteristics

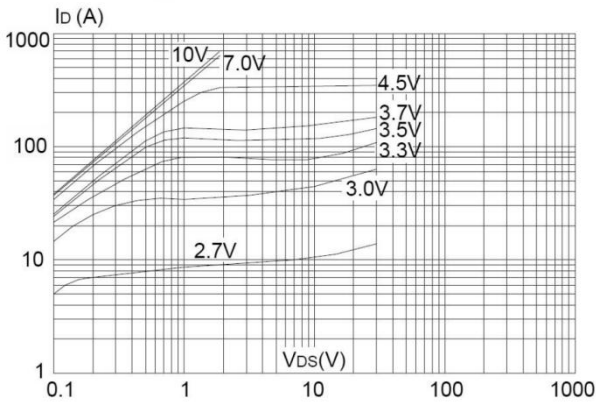


Figure 2: Typical Transfer Characteristics

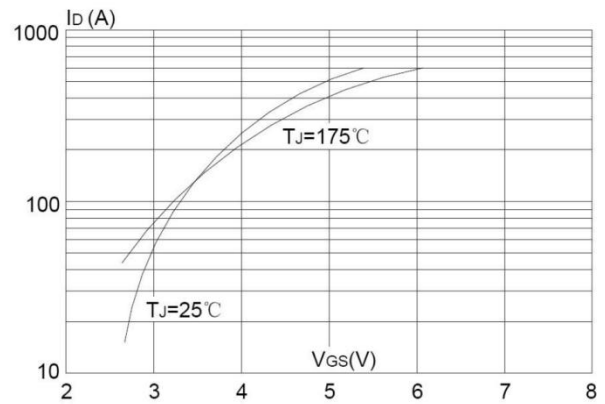


Figure 3: On-resistance vs. Drain Current

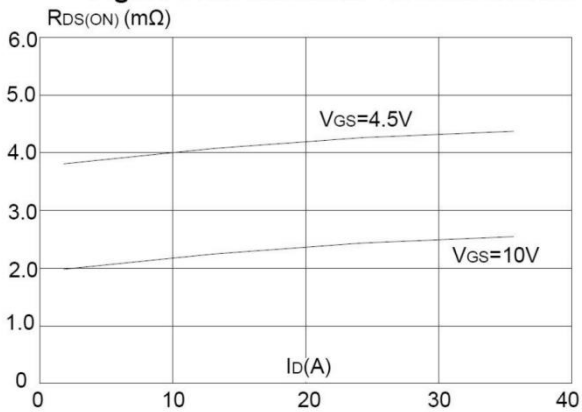


Figure 4: Body Diode Characteristics

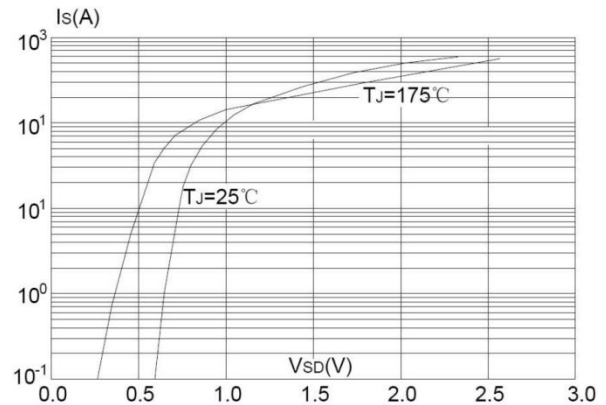


Figure 5: Gate Charge Characteristics

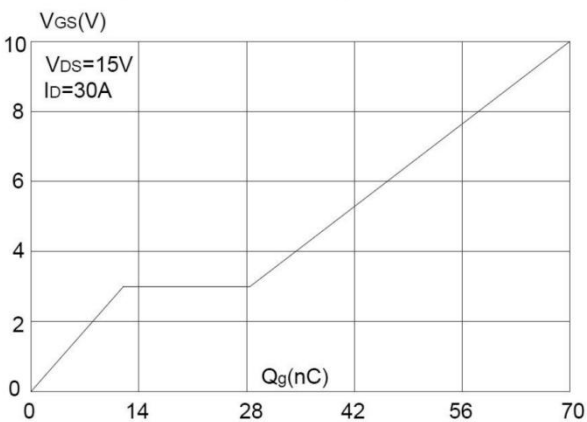
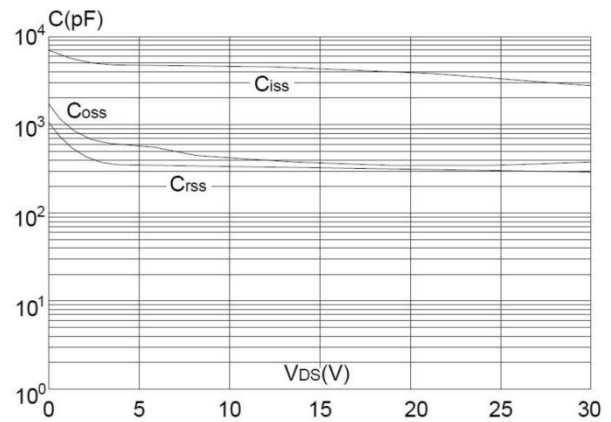


Figure 6: Capacitance Characteristics



Typical Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

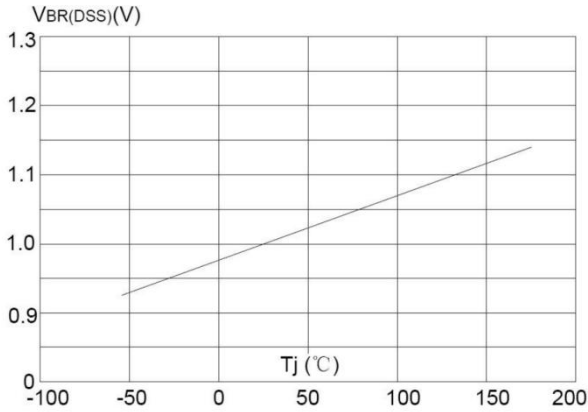


Figure 8: Normalized on Resistance vs. Junction Temperature

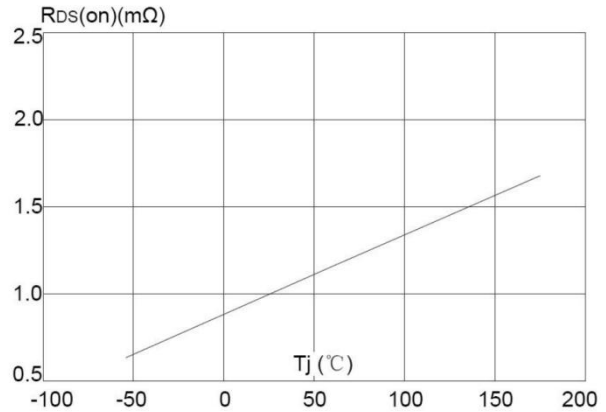


Figure 9: Maximum Safe Operating Area

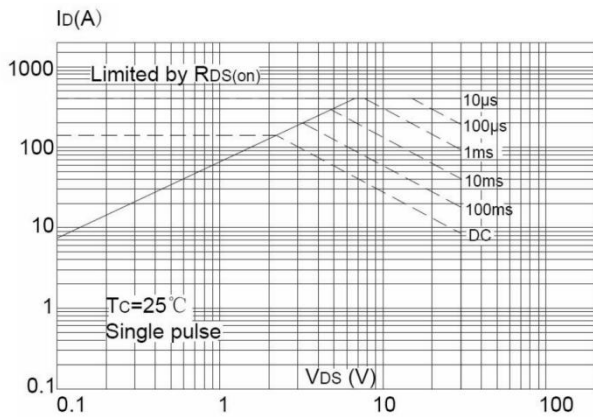


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

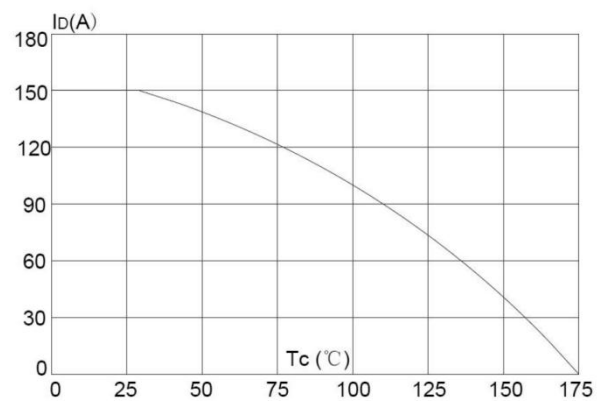
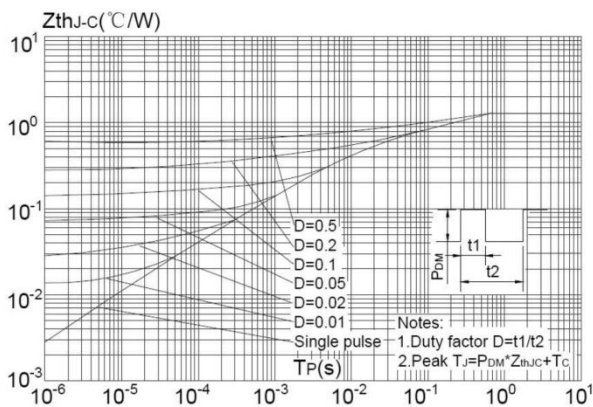
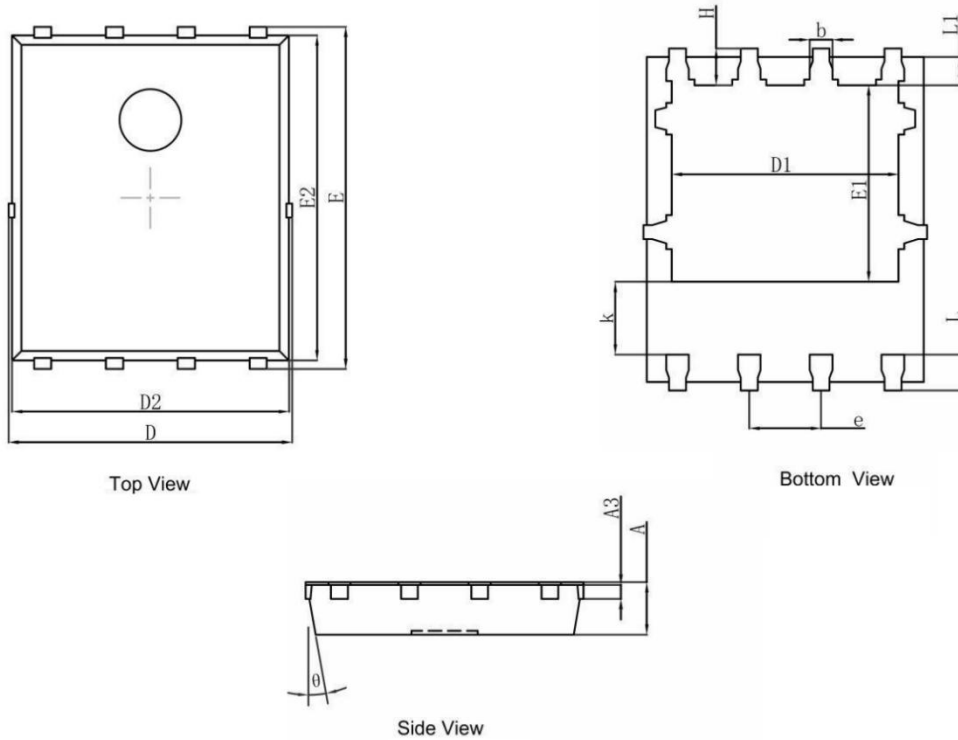


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



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°