

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	1.3m Ω @10V	120A
	1.7m Ω @4.5V	

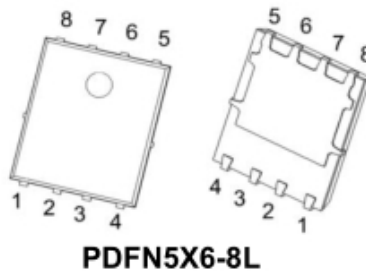
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

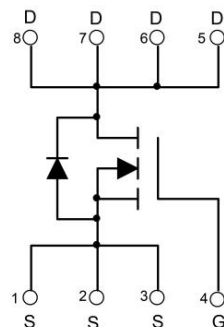
Applications

- DC-DC Converters
- Power Management

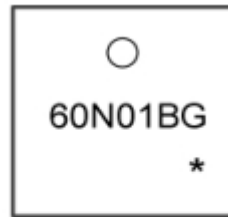
Package



Circuit diagram



Marking



60N01BG =Device Code
* =Month Code

Absolute maximum ratings

(T_a=25°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°C, Package limit)	I _D	120	A
Continuous Drain Current ¹ (T _c =25°C, Silicon limit)	I _D	275	A
Pulsed Drain Current ²	I _{DM}	400	A
Single Pulse Avalanche Energy ³	E _{AS}	756	
Total Power Dissipation ⁴ (T _c =25°C)	P _D	105	W
Thermal Resistance Junction-Case ¹	R _{θJC}	1.19	°C/ W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

Electrical characteristics

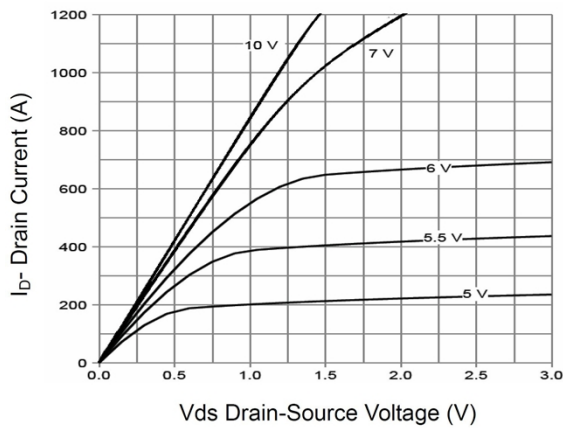
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	60			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =48V,V _{GS} = 0V			1	uA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V , V _{DS} =0V			±100	uA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A		1.3	1.65	mΩ
		V _{GS} =10V, I _D =20A		1.7	2.3	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz		8641		pF
Output Capacitance	C _{OSS}			1855		
Reverse Transfer Capacitance	C _{rss}			55		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =30A		129		pF
Gate-Source Charge	Q _{gs}			41		
Gate-Drain Charge	Q _{gd}			24		
Turn-On Delay Time	T _{d(on)}	V _{DD} =30V, V _{GS} =10V, R _G =4.7Ω, I _D =30A		20		nS
Rise Time	T _r			30		
Turn-Off Delay Time	T _{d(off)}			59		
Fall Time	T _f			22		
Diode Characteristics						
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V , I _S =1A ,T _J =25°C			1.2	V

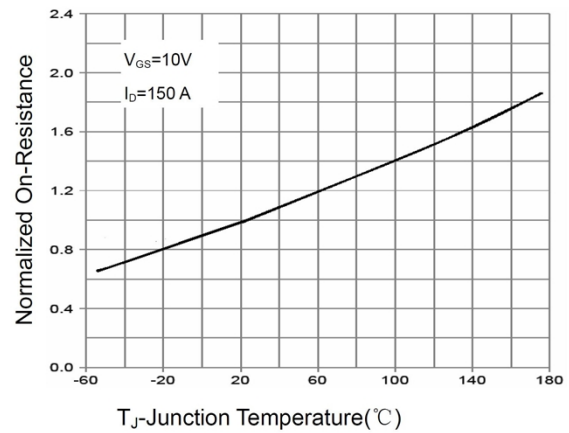
Note :

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is $V_{DD}=30V, V_{GS}=10V, L=0.5mH, R_G=25\Omega$
4. The power dissipation is limited by 150°C junction temperature
5. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

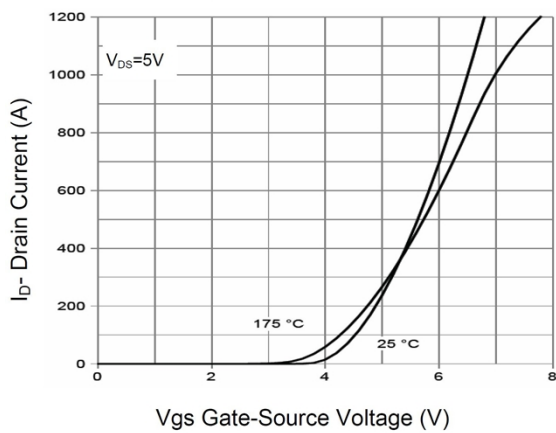
Typical Characteristics



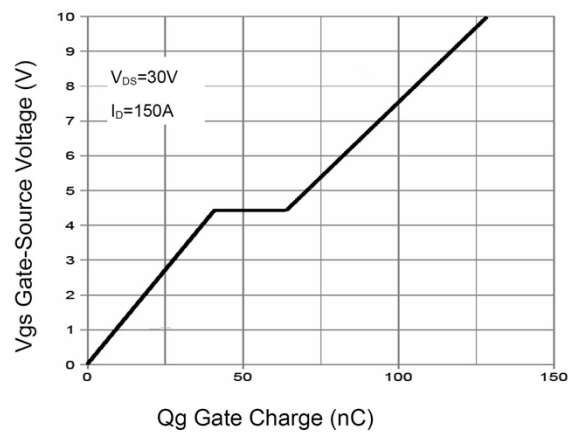
Output Characteristics



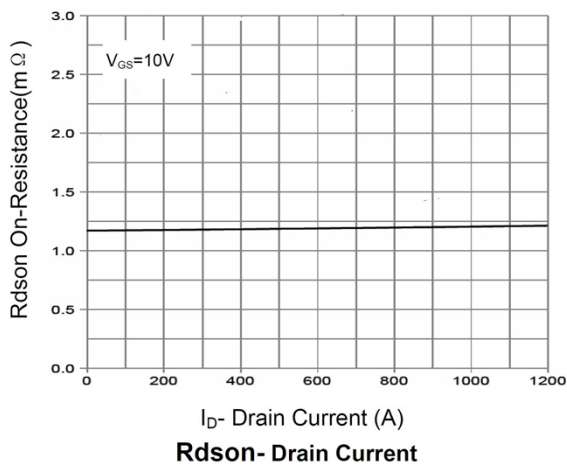
$R_{DS(on)}$ -Junction Temperature



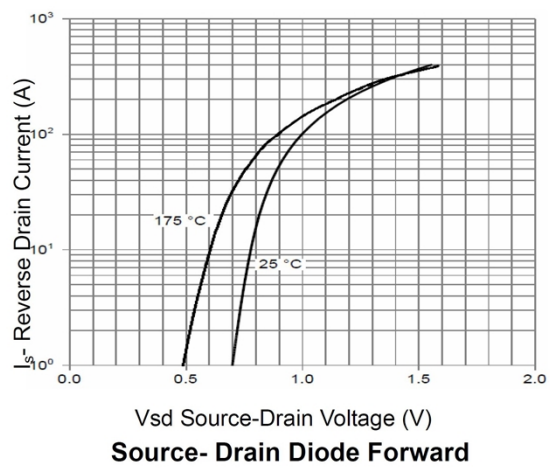
Transfer Characteristics



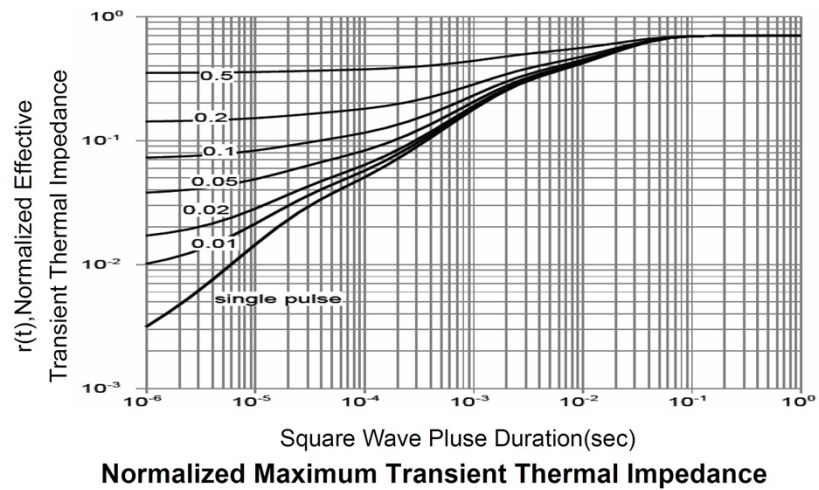
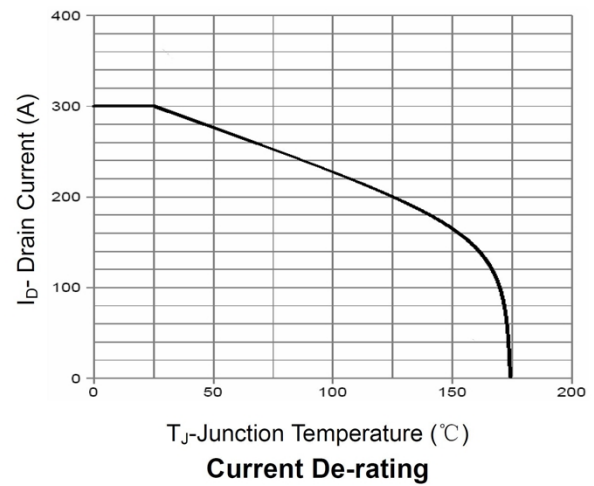
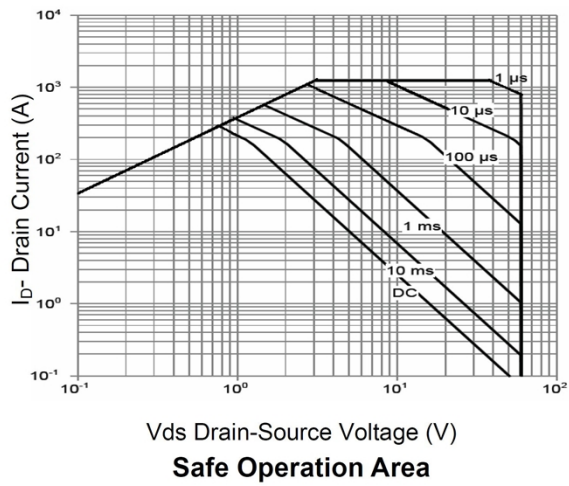
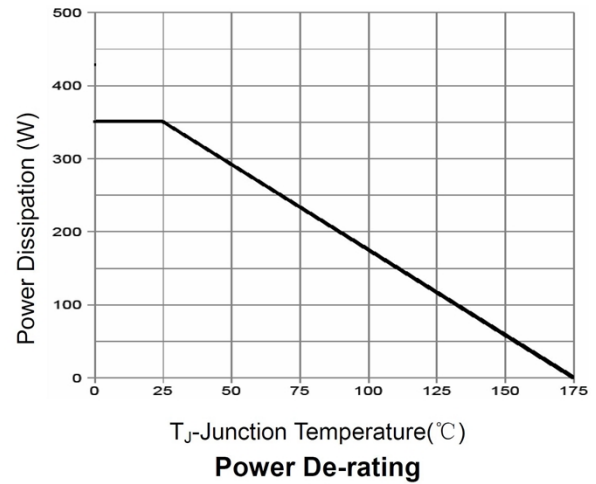
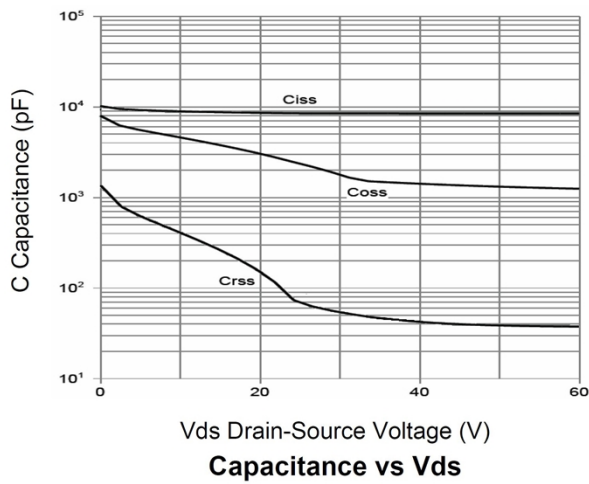
Gate Charge



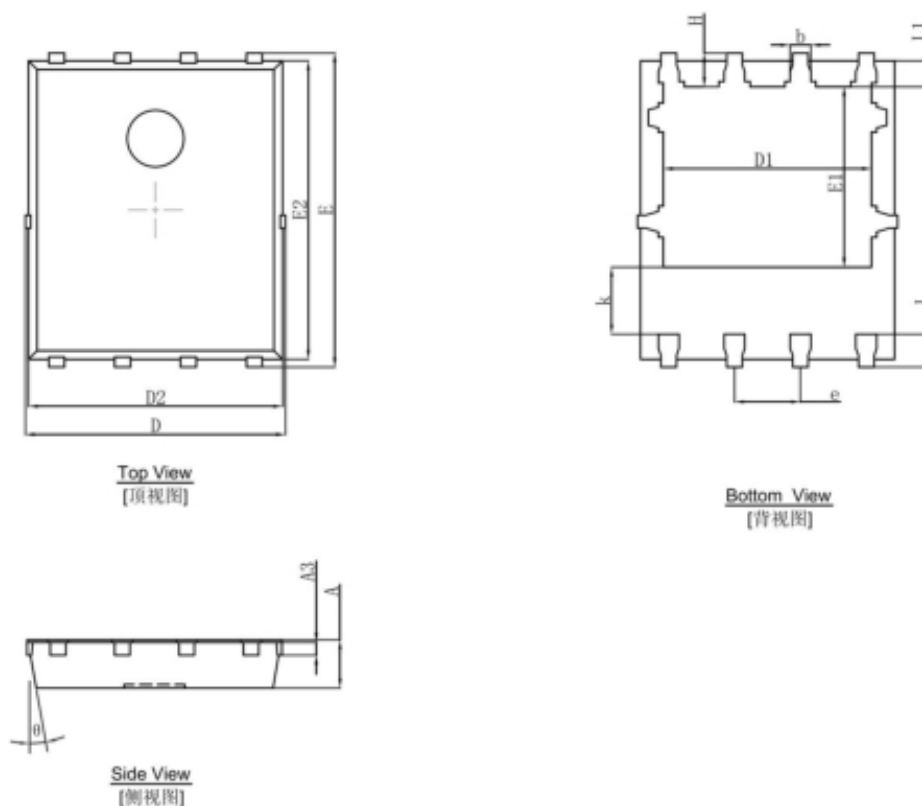
$R_{DS(on)}$ - Drain Current



Source- Drain Diode Forward



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°