

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	15mΩ@10V	40A
	18mΩ@4.5V	

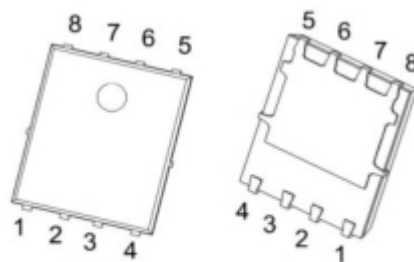
Feature

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

Application

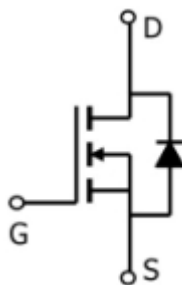
- Power switching application
- DC-DC Converter

Package

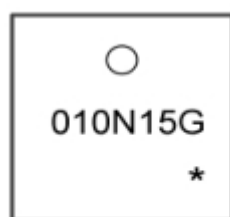


PDFNWB5X6-8L

Circuit diagram



Marking



010N15G =Device Code
* =Month Code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current (T _c =25°C)	I _D	40	A
Pulsed Drain Current ²	I _{DM}	160	A
Single Pulse Avalanche Energy ³	E _{AS}	110	mJ
Avalanche Current	I _{AS}	21	A
Total Power Dissipation ⁴ (T _c =25°C)	P _D	65	W
Thermal Resistance Junction-Case ¹	R _{θJC}	1.92	°C/ W
Storage Temperature Range	T _{STG}	-55~ +150	°C
Operating Junction Temperature Range	T _J	-55~ +150	°C

Electrical characteristics

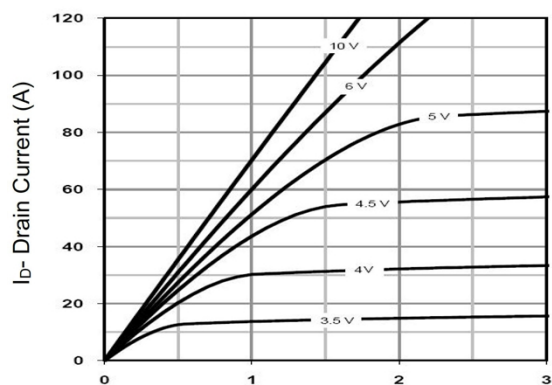
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	100			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =80V,V _{GS} = 0V , T _J =25℃			1	uA
Gate-Source 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	1.8	2.5	V
Static Drain-Source on-Resistance ²	R _{DS(on)}	V _{GS} =10V, I _D =20A		15	19	mΩ
		V _{GS} =4.5V, I _D =10A		18	24	
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =50V,V _{GS} =0V, f=1MHz		1871		pF
Output Capacitance	C _{Oss}			161		
Reverse Transfer Capacitance	C _{rss}			19		
Switching Characteristics						
Total Gate Charge (4.5V)	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =20A		33.5		nC
Gate-Source Charge	Q _{gS}			6.9		
Gate-Drain Charge	Q _{gd}			5.1		
Turn-On Delay Time	T _{d(on)}	V _{DD} =50V, V _{GS} =10V, R _G =3Ω, I _D =20A		15		nS
Rise Time	T _r			18		
Turn-Off Delay Time	T _{d(off)}			30		
Fall Time	T _f			9		
Drain-Source Diode Characteristics						
Diode forward voltage ²	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25℃			1.2	V

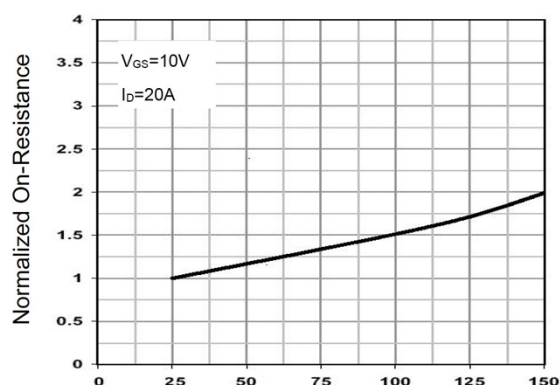
Notes:

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 $V_{DD} = 50V, V_{GS} = 10V, L = 0.5\text{mH}, I_{AS} = 21A$
4. The power dissipation is limited by 150°C junction temperature

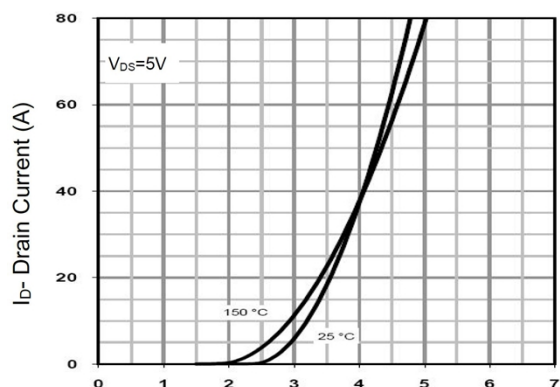
Typical Characteristics



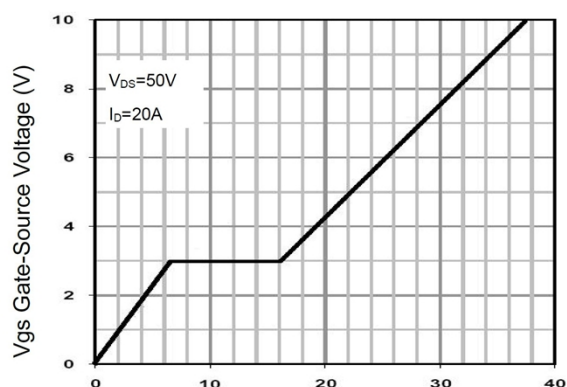
V_{DS} Drain-Source Voltage (V)
Output Characteristics



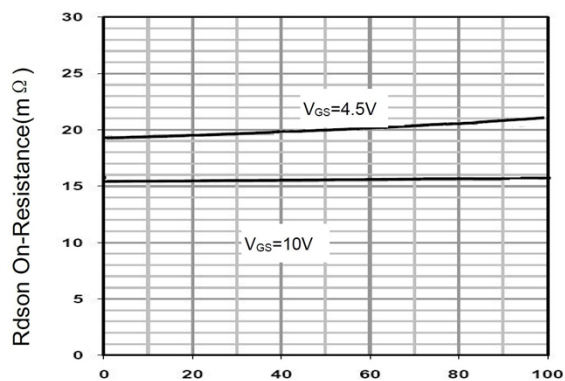
T_J -Junction Temperature($^{\circ}C$)
 $R_{DS(on)}$ -Junction Temperature



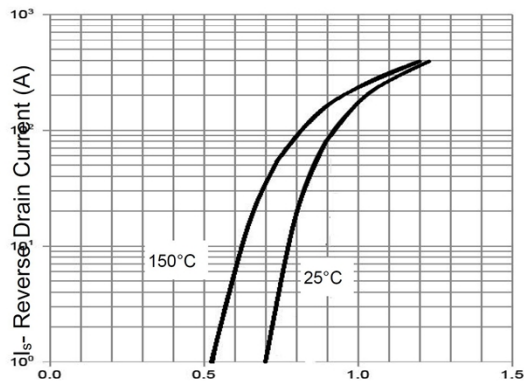
V_{GS} Gate-Source Voltage (V)
Transfer Characteristics



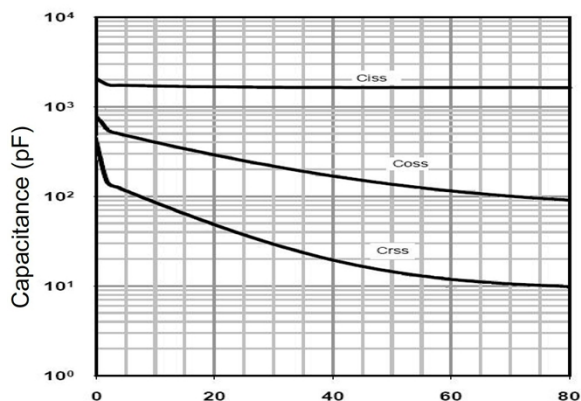
Q_g Gate Charge (nC)
Gate Charge



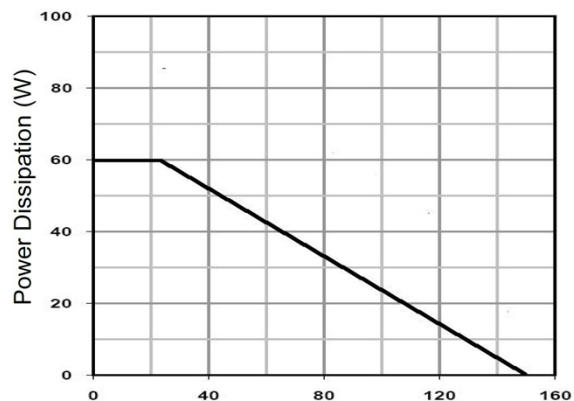
I_D - Drain Current (A)
 $R_{DS(on)}$ - Drain Current



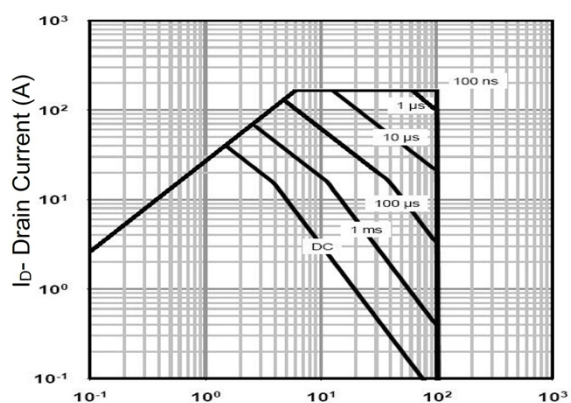
V_{SD} Source-Drain Voltage (V)
Source- Drain Diode Forward



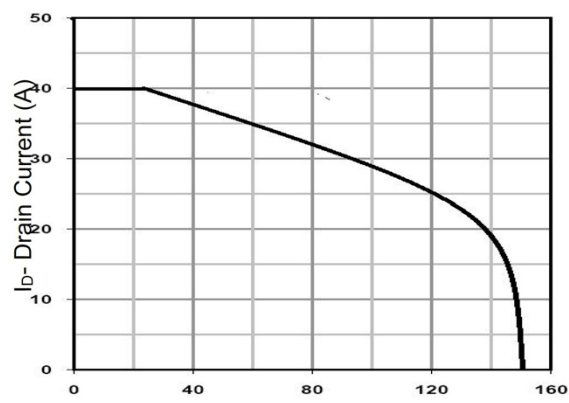
Vds Drain-Source Voltage (V)
Capacitance vs Vds



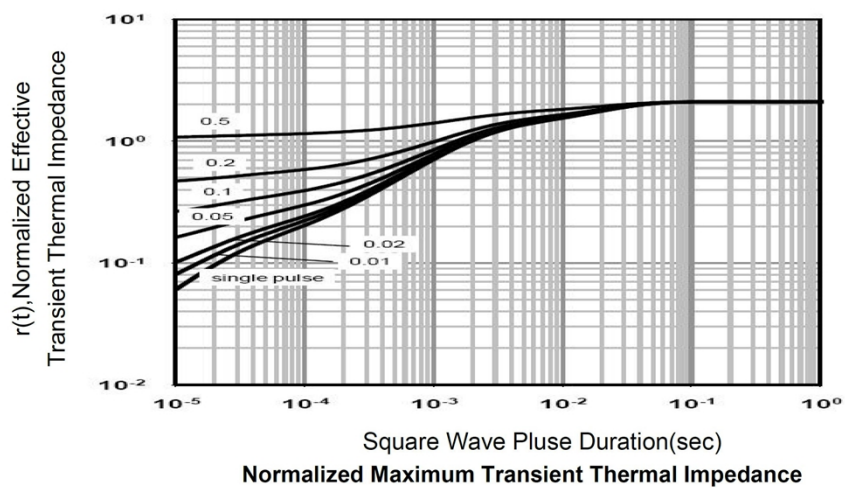
TA-Junction Temperature (°C)
Power De-rating



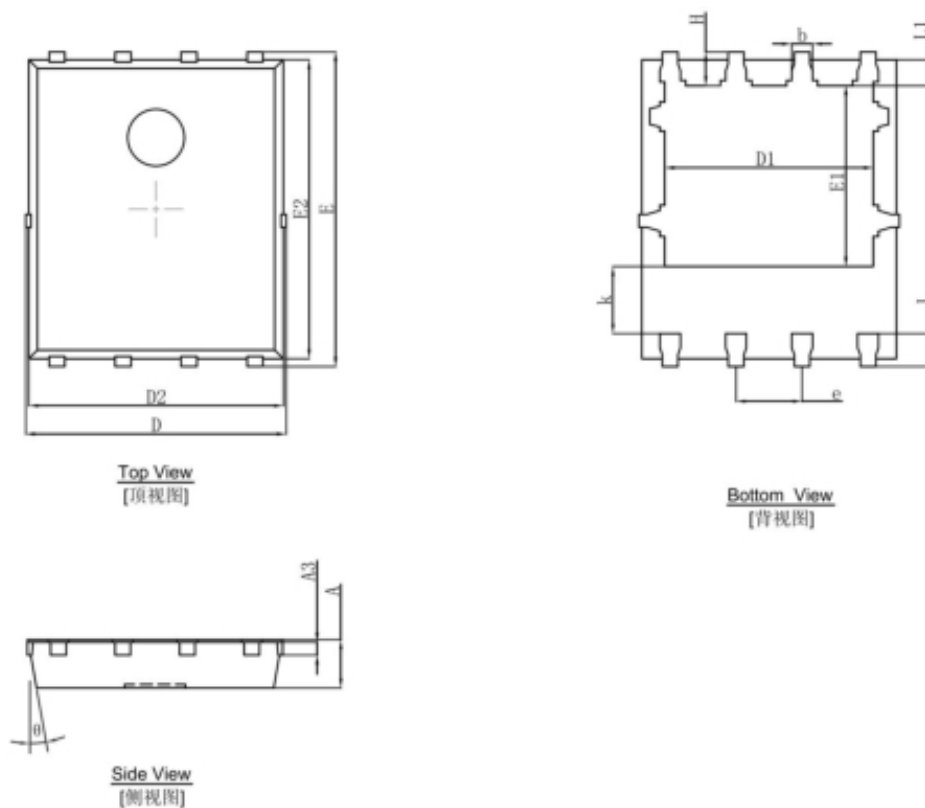
Vds Drain-Source Voltage (V)
Safe Operation Area



TA-Junction Temperature (°C)
Current De-rating



PDFNWB5X6-8L 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°