Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	2.6mΩ@10V	100A
	3.5mΩ@4.5V	

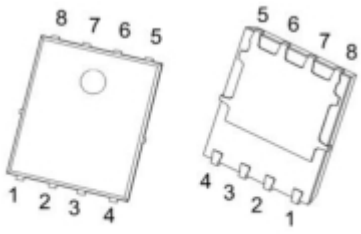
Feature

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

Applications

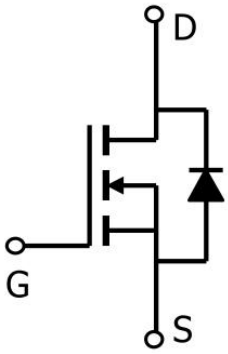
- Consumer electronic power supply
- Motor control
- Synchronous-rectification
- Isolated DC/DC convertor
- Invertors

Package



PDFN5×6-8L

Circuit diagram



Marking

60N03G : Product code

* :Month code.

Absolute maximum ratings

(T_a=25℃ 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)]	I_D	100	A
Pulsed drain curren[t2)]	I_{DM}	400	A
Power dissipation[3)]	P_D	140	W
Single pulsed avalanche energy[5)]	E_{AS}	80	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	0.89	℃/ W
Thermal resistance, junction-ambient[4)]	$R_{\theta JA}$	62	℃
Operation and storage temperature	T_J, T_{STG}	-55~ +150	℃

Electrical characteristics

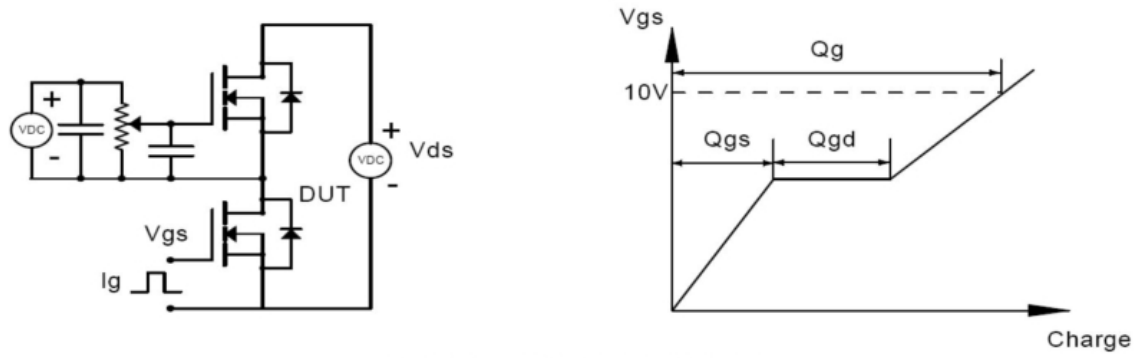
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.3		2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		2.6	3.2	mΩ
		V_{GS} =4.5V, I_D =10A		3.5	4.3	
Gate-source leakage current	I_{GSS}	V_{GS} =±20V			±100	uA
Drain-source leakage current	I_{DSS}	V_{DS} =60V,V_{GS} = 0V			1	uA
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=100KHz		5377		pF
Output capacitance	C_{oss}			1666		
Reverse transfer capacitance	C_{rss}			77.7		
Turn-on delay time	$T_{d(on)}$	V_{GS}=10V, V_{DS}=30V, R_G =2Ω, I_D =25A		22.5		nS
Rise time	T_r			6.7		
Turn-off delay time	$T_{d(off)}$			80.3		
Fall time	T_f			26.8		
Switching Characteristics						
Total Gate Charge	Q_g	I_D =25A, V_{DS}=30V , V_{GS}=10V		66.1		pF
Gate-Source Charge	Q_{gs}			10.7		
Gate-Drain Charge	Q_{gd}			10.9		
Gate plateau voltage	$V_{plateau}$			2.9		V
Diode Characteristics						
Diode forward voltage	V_{SD}	V_{GS}=0V ,I_S=20A			1.3	V
Reverse recovery time	t_{rr}	I_S=25A,di/dt=100 A/μs		68.3		ns
Reverse recovery charge	Q_{rr}			73		nC
Peak reverse recovery current	I_{rrm}			1.9		A

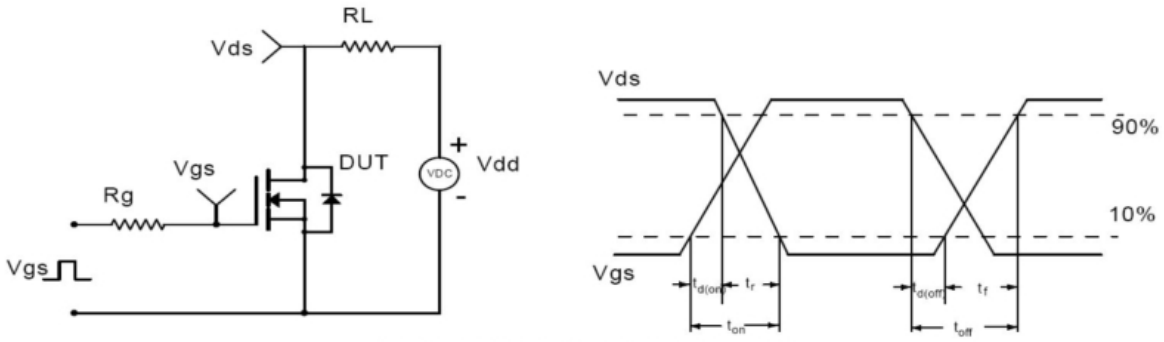
Note :

1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. Pd is based on max. junction temperature, using junction-case thermal resistance.
4. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25 ℃.
5. V_{DD}=50 V, R_G=25 Ω, L=0.3 mH, starting T_j=25 ℃.

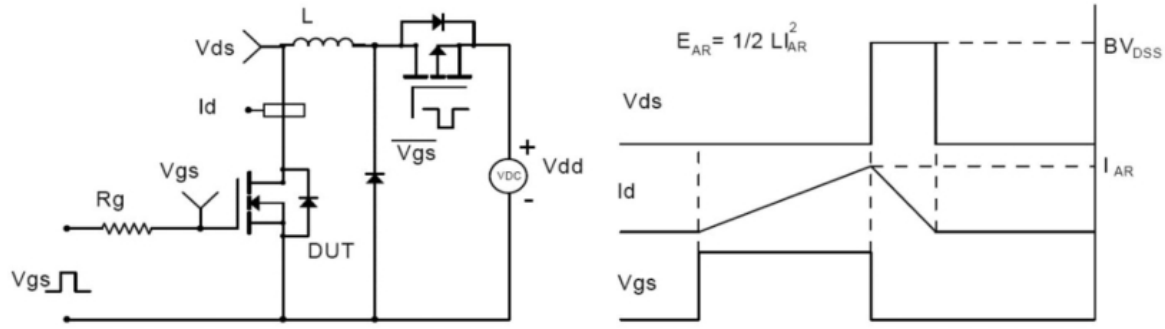
Typical Characteristics



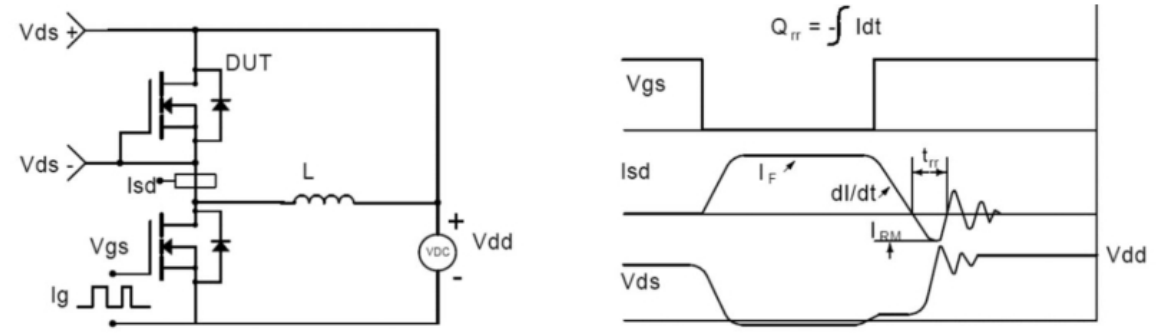
Gate charge test circuit & waveform



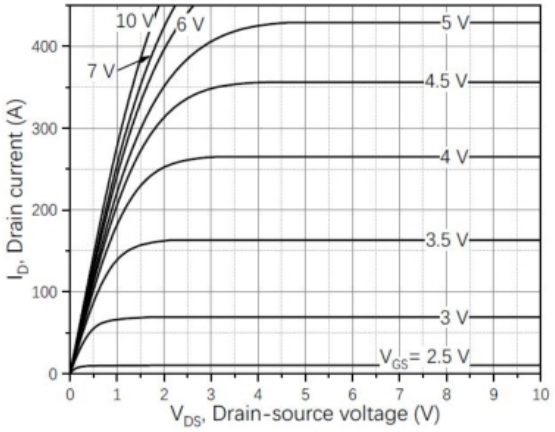
Switching time test circuit & waveforms



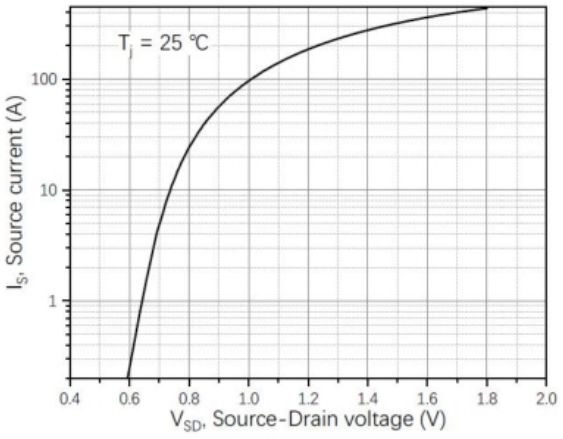
Unclamped inductive switching (UIS) test circuit & waveforms



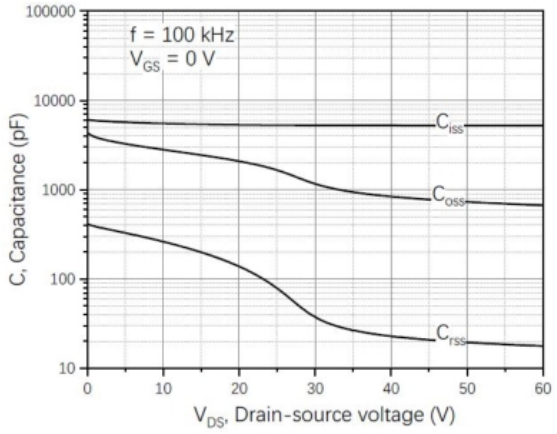
Diode reverse recovery test circuit & waveforms



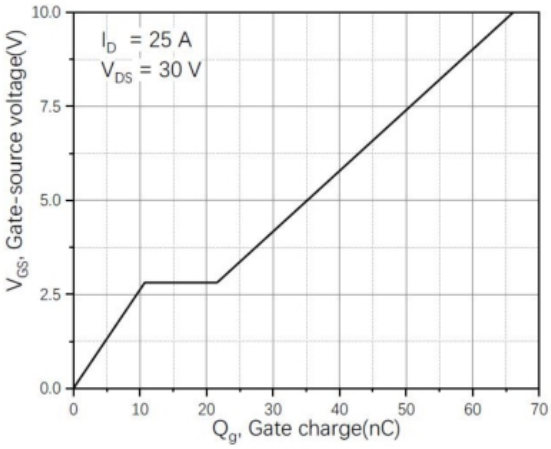
output characteristics



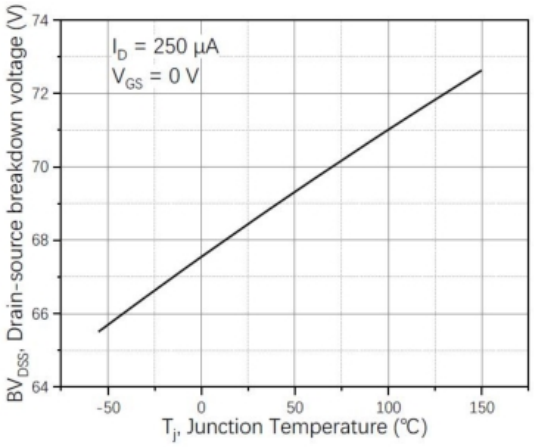
transfer characteristics



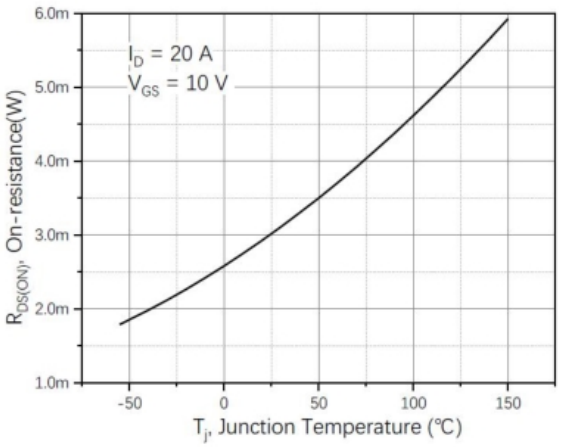
Capacitances



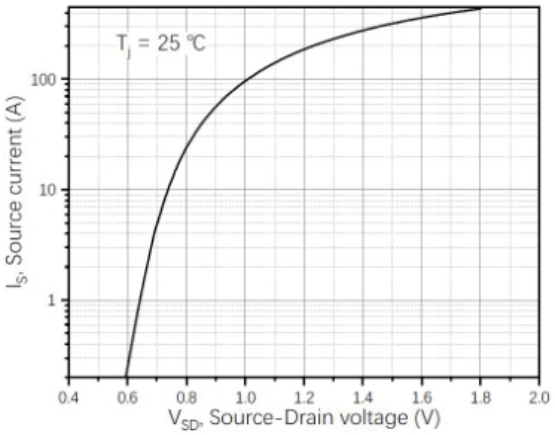
gate charge



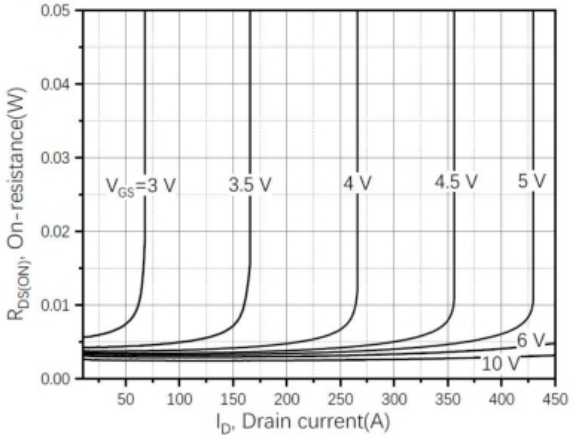
Drain-source breakdown voltage



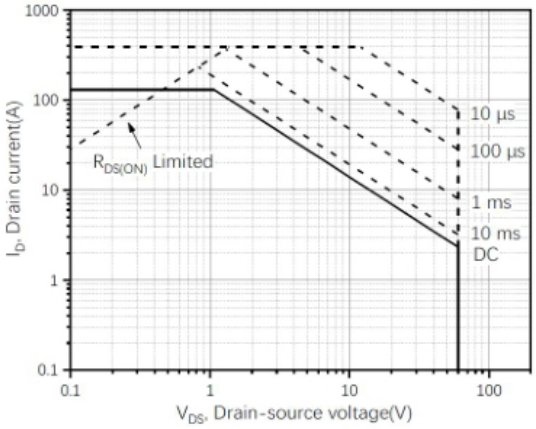
Drain-source on-state resistance



Forward characteristic of body diode

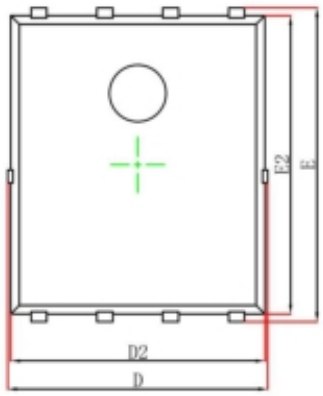


Drain-source on-state resistance

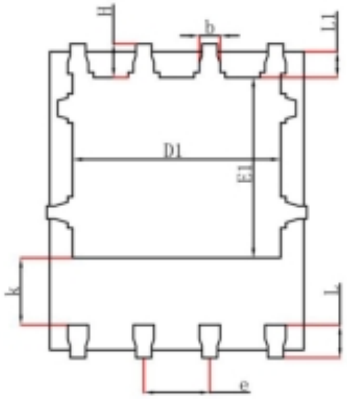


Safe operation area T_C=25 ℃

PDFNWB5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]

Side View
[侧视图]

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°