XXW100N75

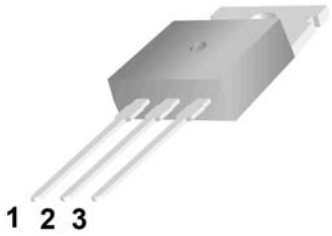
75V N-Channel MOSFET

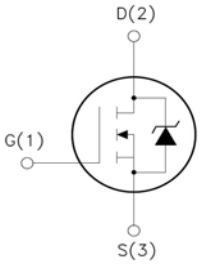
Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 35nC (Typ.).
- ☐ VDSS=75V,I_D= 100A
- ☐ R_{DS}(on) : 8.6mΩ (Max) @V_G=10V
- ☐ 100% Avalanche Tested

TO-220

RoHS COMPLIANT





1.Gate (G)
2.Drain (D)
3.Source (S)

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		75	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25℃	100	A
		T_C = 100℃	52	A
I_{DM}	Pulsed Drain Current note1		400	A
EAS	Single Pulsed Avalanche Energy note2		121	mJ
P_D	Power Dissipation	T_C = 25℃	116	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		0.85	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +175	℃

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	75	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=75V, V_{GS}=0V,	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	2	3	4	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D=50A	-	6.6	8.6	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=30V, V_{GS}=0V, f=1.0MHz	-	4062	-	pF
C_{oss}	Output Capacitance		-	261	-	pF
C_{rss}	Reverse Transfer Capacitance		-	231	-	pF
Q_g	Total Gate Charge	V_{DS}=30V, I_D=50A, V_{GS}=10V	-	35	-	nC
Q_{gs}	Gate-Source Charge		-	11	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	09	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=30V, I_D=20A, R_G=6.0Ω, V_{GS}=10V	-	9	-	ns
t_r	Turn-on Rise Time		-	7	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	40	-	ns
t_f	Turn-off Fall Time		-	15	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	100	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	400	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=50A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I_F=20A, dI/dt=100A/μs	-	78	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	51	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition : T_J=25℃, V_{DD}=30V, V_G=10V, L=0.5mH, Rg=25Ω, I_{AS}=26A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics

Figure1: Output Characteristics

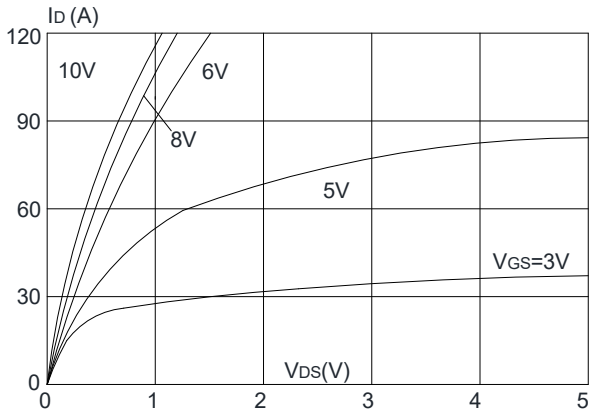


Figure 2: Typical Transfer Characteristics

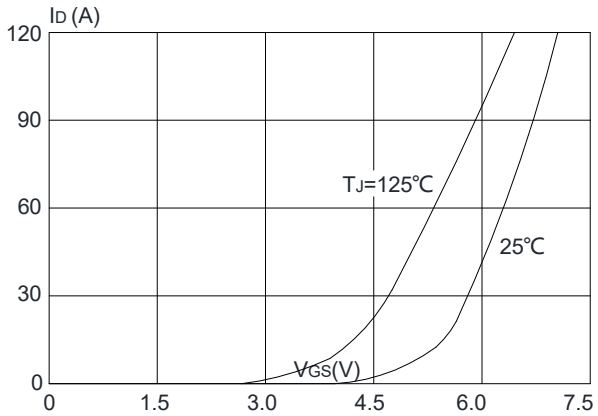


Figure 3: On-resistance vs. Drain Current

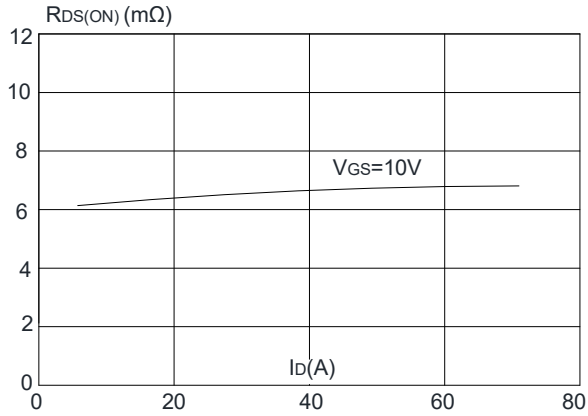


Figure 4: Body Diode Characteristics

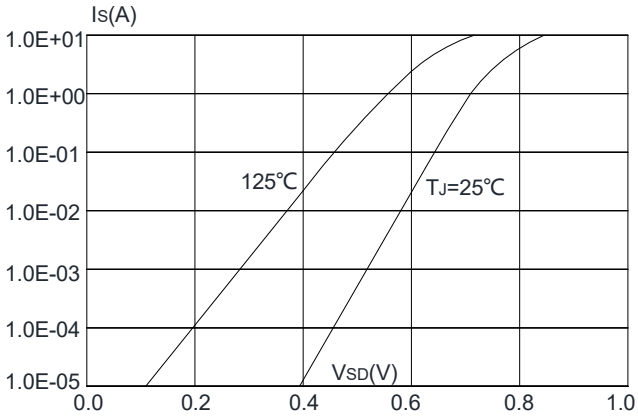


Figure 5: Gate Charge Characteristics

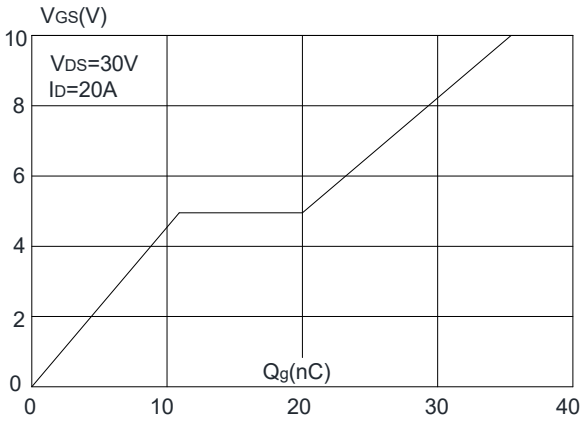


Figure 6: Capacitance Characteristics

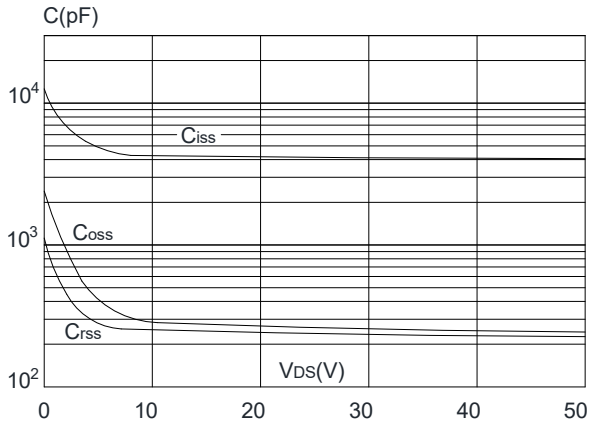


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

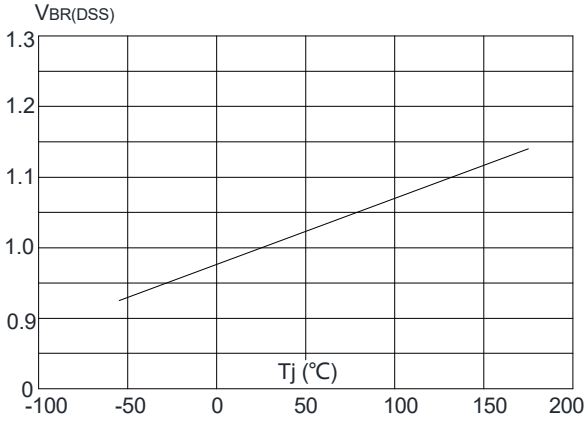


Figure 8: Normalized on Resistance vs. Junction Temperature

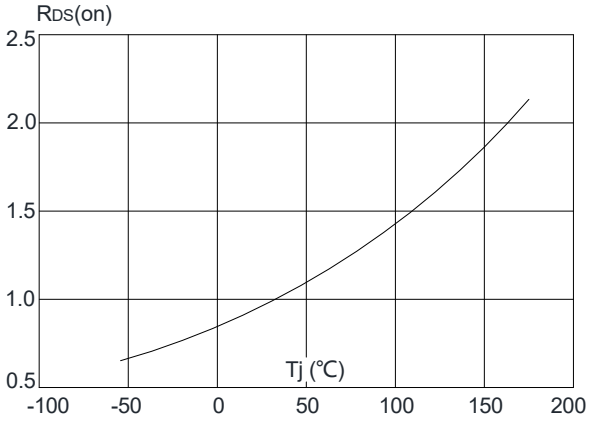


Figure 9: Maximum Safe Operating Area

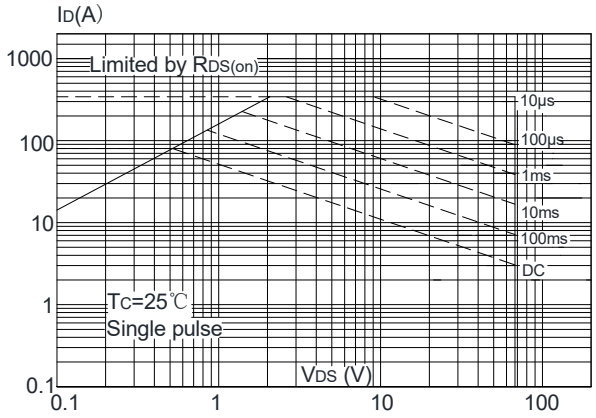


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

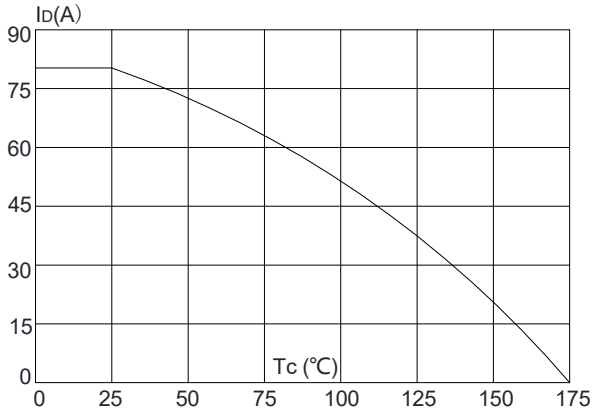
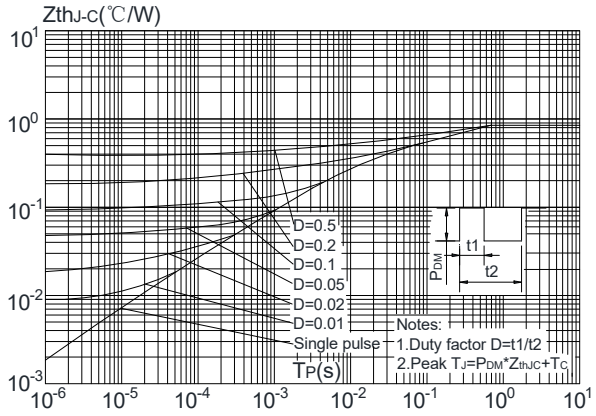


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Test Circuit

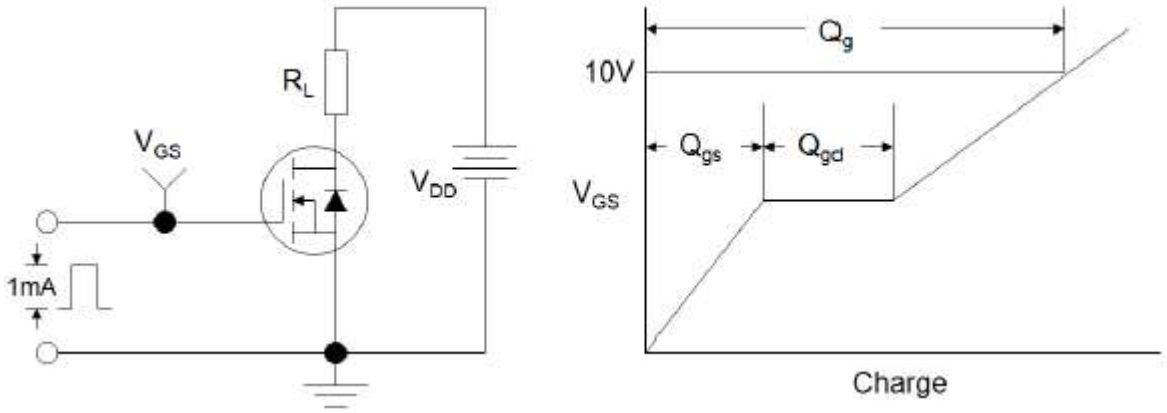


Figure1:Gate Charge Test Circuit & Waveform

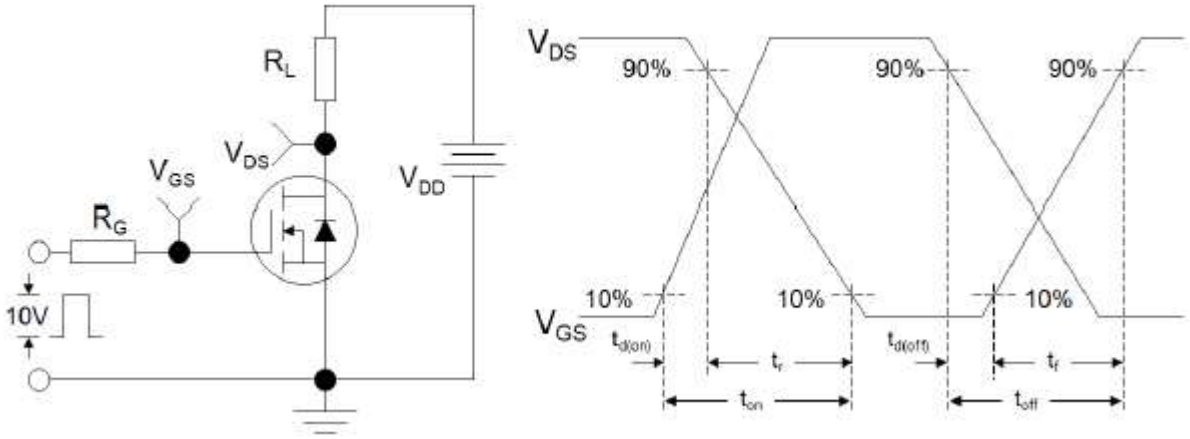


Figure 2: Resistive Switching Test Circuit & Waveforms

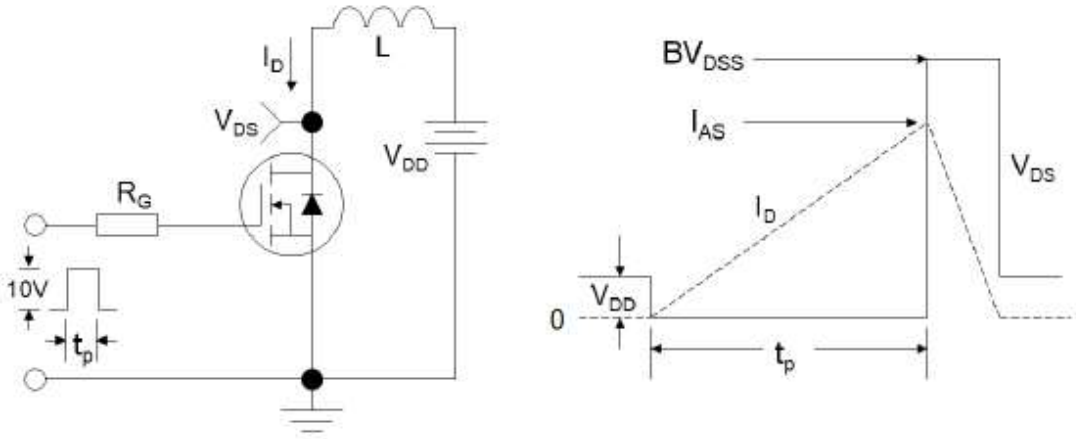


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

Package Dimension

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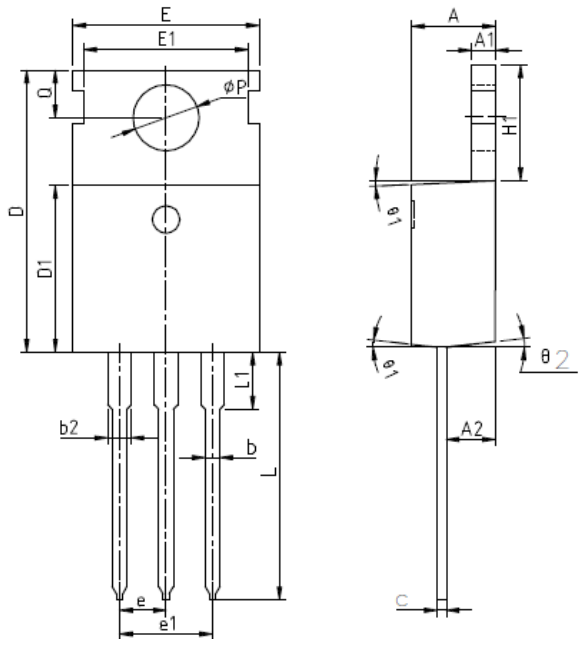

SYMBOL	MIN	NOM	MAX
A	4.27	4.57	4.87
A1	1.15	1.30	1.45
A2	2.10	2.40	2.70
b	0.70	0.80	1.00
b2	1.17	1.27	1.50
c	0.40	0.50	0.65
D	15.10	15.60	16.10
D1	8.80	9.10	9.40
D2	5.70	6.70	7.00
E	9.70	10.00	10.30
E1	-	8.70	-
E2	9.65	10.00	10.35
E3	7.00	8.00	8.40
e		2.54 BSC	
e1		5.08 BSC	
H1	6.00	6.50	6.85
L	12.75	13.50	13.90
L1	-	3.10	3.40
ΦP	3.45	3.60	3.75
Q	2.60	2.80	3.00
θ1	4°	7°	10°
θ2	0°	3°	6°