ASDM30N75KQ

30V N-CHANNEL MOSFET

Features

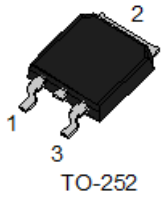
- 30V,75A
- $R_{DS(ON)}$=4.8mΩ (Typ.) @ V_{GS} =10V
- $R_{DS(ON)}$=6.5mΩ (Typ.) @ V_{GS} =4.5V
- Advanced Trench Technology
- Provide Excellent $R_{DS(ON)}$ and Low Gate Charge

Application

- Load Switch
- PWM Application

Product Summary

V_{DS}	30	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	4.8	mΩ
I_D	75	A



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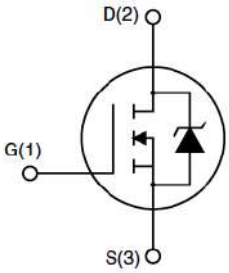


Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		30	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25℃	75	A
		T_C = 100℃	50	A
I_{DM}	Pulsed Drain Current note1		300	A
E_{AS}	Single Pulsed Avalanche Energy note2		88	mJ
P_D	Power Dissipation	T_C = 25℃	75	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		2	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		65	
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +175	℃

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =30V, V_{GS} = 0V, T_J=25℃	-	-	1	uA
		V_{DS} =24V, V_{GS} = 0V, T_J=125℃	-	-	10	
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	1.0	1.6	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	V_{GS} =10V, I_D =20A	-	4.8	6	mΩ
		V_{GS} =4.5V, I_D =10A	-	6.5	12	
g_{FS}	Forward Transconductance	V_{DS} =5V, I_D =10A	-	20	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} =25V, V_{GS} =0V, f = 1.0MHz	-	1560	-	pF
C_{oss}	Output Capacitance		-	220	-	pF
C_{rss}	Reverse Transfer Capacitance		-	178	-	pF
Q_g	Total Gate Charge	V_{DS} =15V, I_D =20A, V_{GS} =4.5V	-	11.1	-	nC
Q_{gs}	Gate-Source Charge		-	1.85	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	6.8	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=15V, I_D=15A, R_G=3.3Ω, V_{GS} =10V	-	7.5	-	ns
t_r	Turn-on Rise Time		-	14.5	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	35.2	-	ns
t_f	Turn-off Fall Time		-	9.6	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	75	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	300	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S=30A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I_S=30A,dI/dt=100A/μs	-	32	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	12	-	nC

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

2. EAS condition: T_J=25℃,V_{DD}=25V,V_{GS}=10V, L=0.1mH, I_{AS}=42A, R_G=25Ω

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

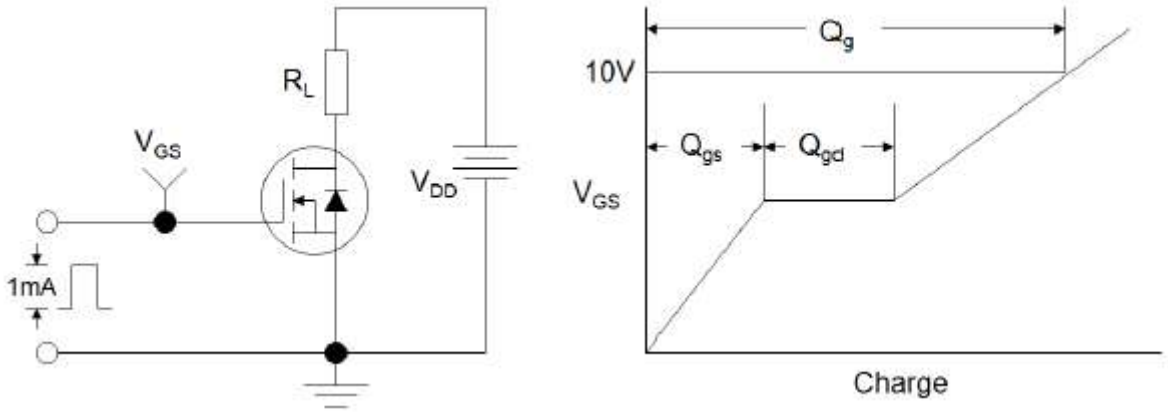


Figure1:Gate Charge Test Circuit & Waveform

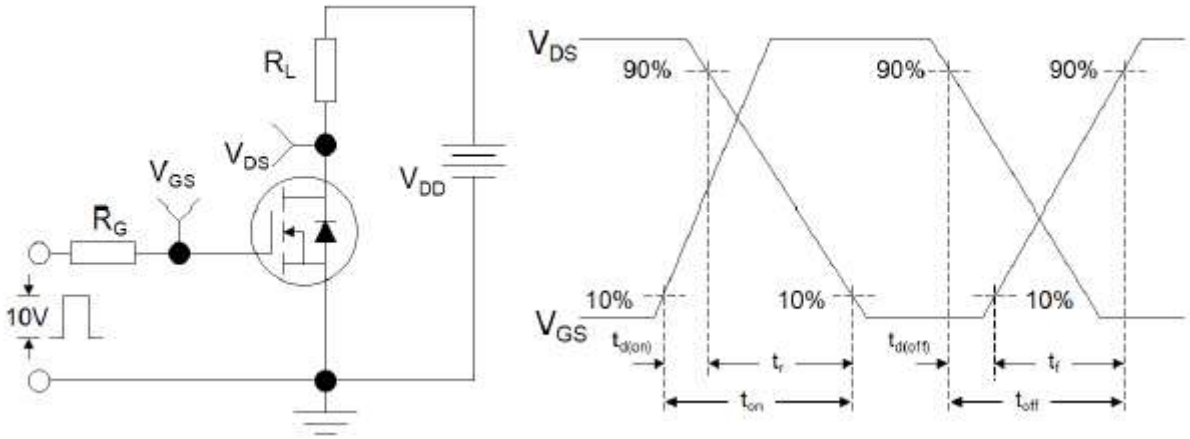


Figure 2: Resistive Switching Test Circuit & Waveforms

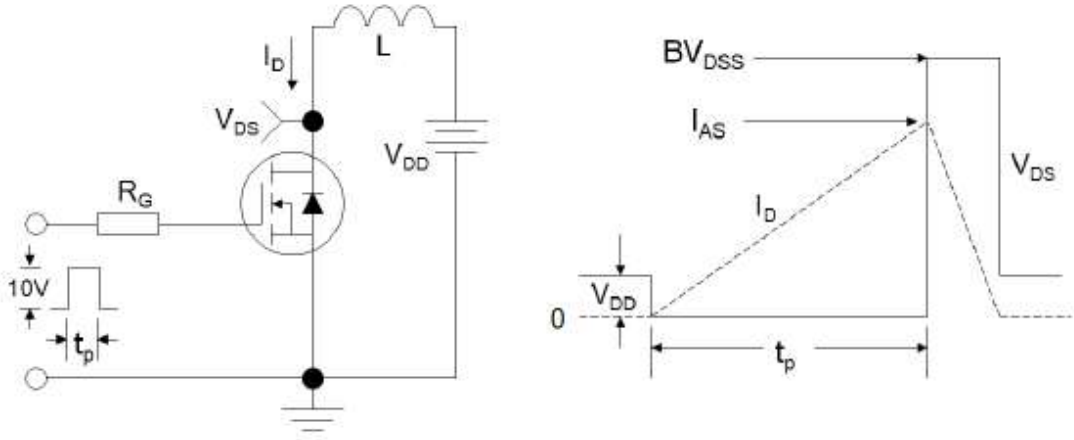


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

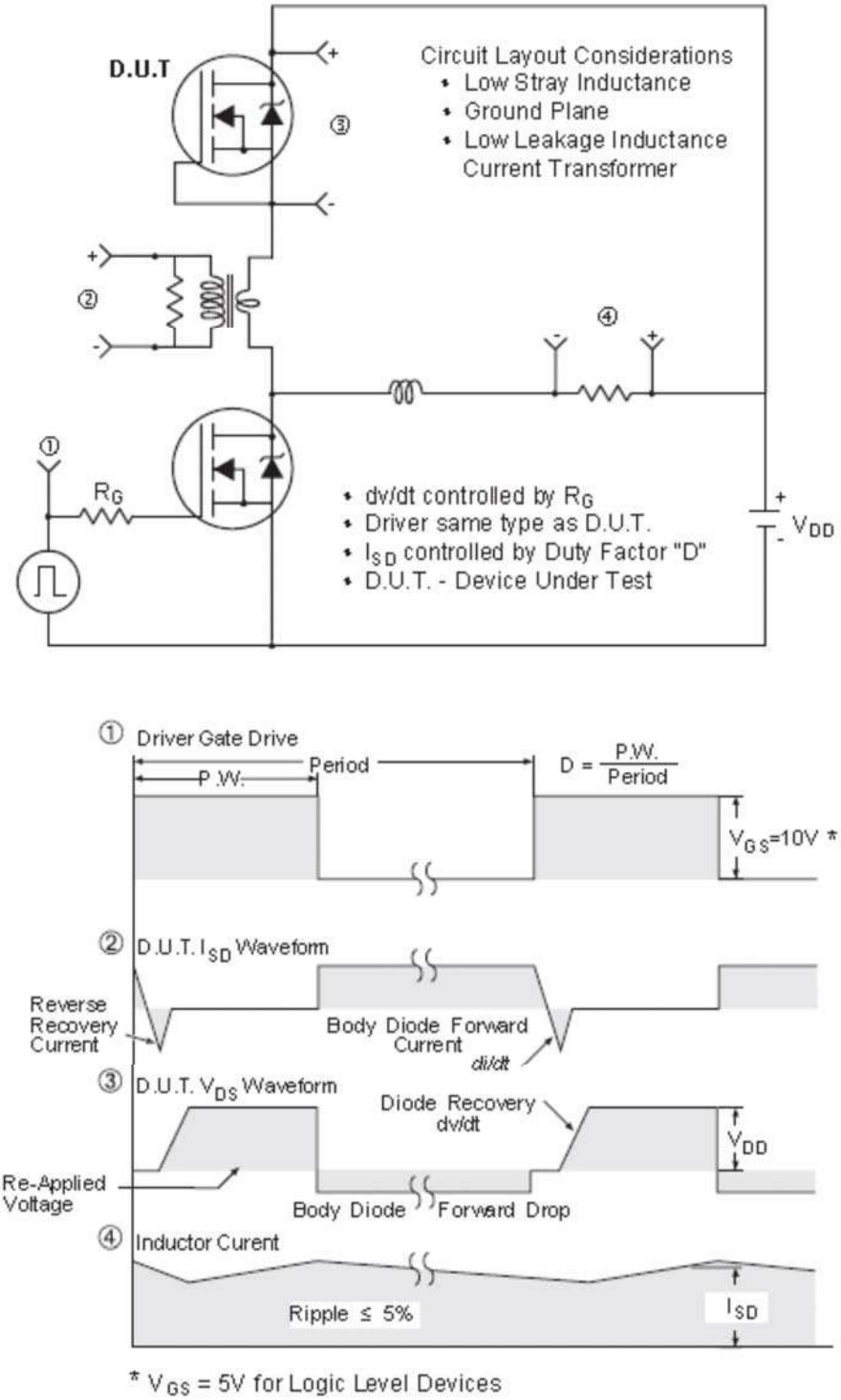
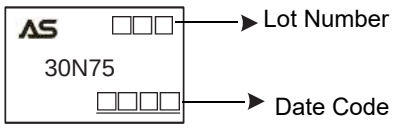


Figure 4:Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM30N75KQ-R	30N75	TO-252	Tape/ Reel	2500/Reel

PACKAGE	MARKING
TO-252	

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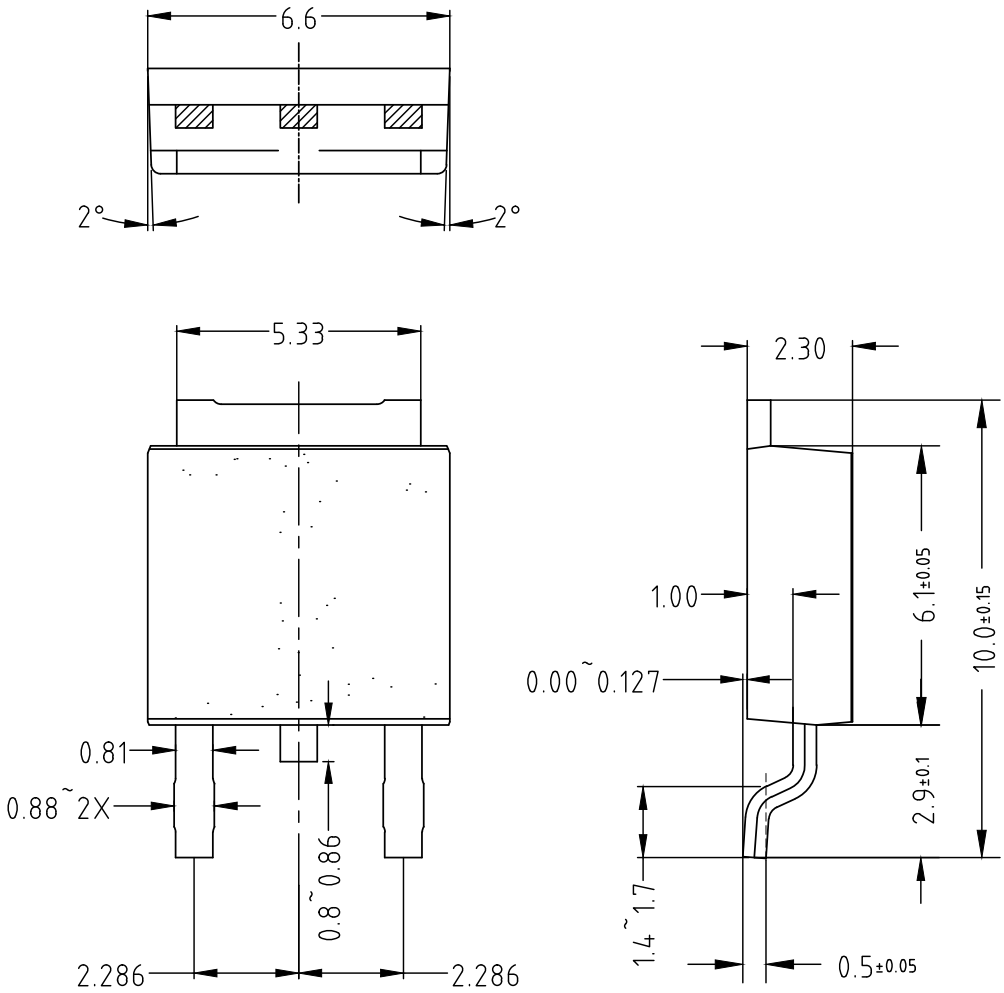
6.6
2°
2°
5.33
0.81
0.88~2X
0.8~0.86
2.286
2.286
2.30
1.00
0.00~0.127
6.1±0.05
10.0±0.15
2.9±0.1
1.4~1.7
0.5±0.05

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