General Description

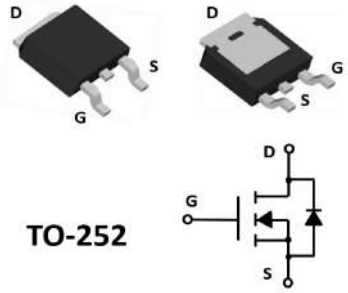
- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low RDS(ON)

Applications

- High current load applications
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

Product Summary

BVDSS	20	V
RDS(on),Typ.@VGS=4.5V	4.5	mΩ
ID	60	A



TO-252

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	20	V
Gate-source Voltage		V_{GS}	±10	V
Drain Current	T_C=25℃	I_D	60	A
	T_C=100℃		42	
Pulsed Drain Current [A]		I_{DM}	210	A
Total Power Dissipation	T_C=25℃	P_D	35	W
	T_C=100℃		18	W
Single Pulse Avalanche Energy [B]		E_{AS}	195	mJ
Thermal Resistance Junction-to-Case [C]		$R_{\theta JC}$	4.3	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+175	℃

Electrical Characteristics (T ₣25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±10V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	0.4	0.62	1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 4.5V, I_D=20A		4.5	6.0	mΩ
		V_{GS}= 2.5V, I_D=15A		5.5	8.8	
		V_{GS}= 1.8V, I_D=10A		8.0	14	
Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V			1.2	V
Maximum Body-Diode Continuous Current	I_S				60	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHZ		2450		pF
Output Capacitance	C_{oss}			430		
Reverse Transfer Capacitance	C_{rss}			205		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=10V,I_D=15A		65		nC
Gate-Source Charge	Q_{gs}			15		
Gate-Drain Charge	Q_{gd}			13		
Reverse Recovery Charge	Q_{rr}	I_F=15A, di/dt=100A/us		39		
Reverse Recovery Time	t_{rr}			35		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=4.5V,V_{DD}=10V, I_D=10A,R_L=1Ω R_{GEN}=3Ω		12		
Turn-on Rise Time	t_r			26		
Turn-off Delay Time	$t_{D(off)}$			35		
Turn-off fall Time	t_f			10		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

B. T_j=25℃, V_{DD}=15V, V_G=10V, L=0.5mH, R_g=25Ω

C. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

Typical Performance Characteristics

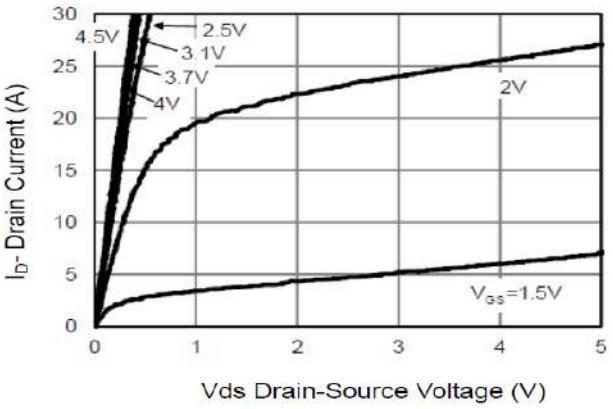


Figure1. Output Characteristics

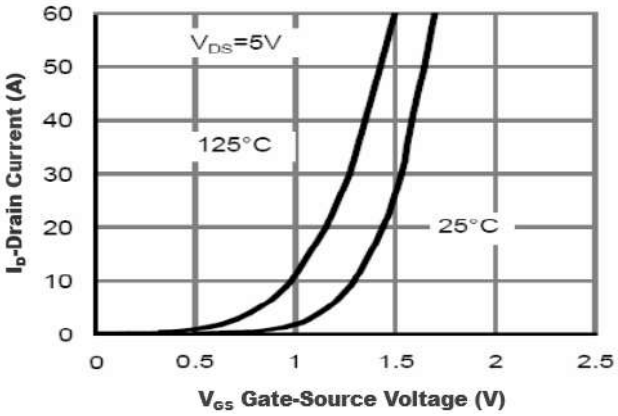


Figure2. Transfer Characteristics

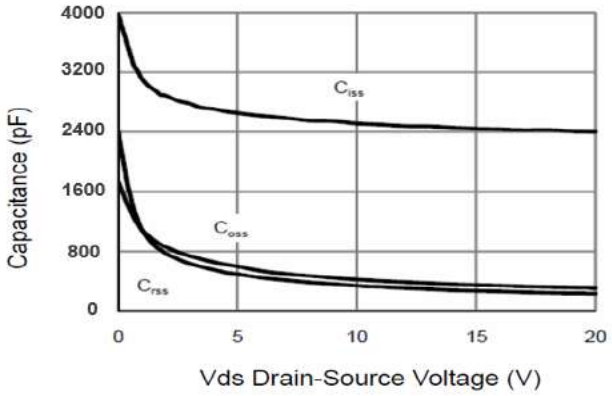


Figure3. Capacitance Characteristics

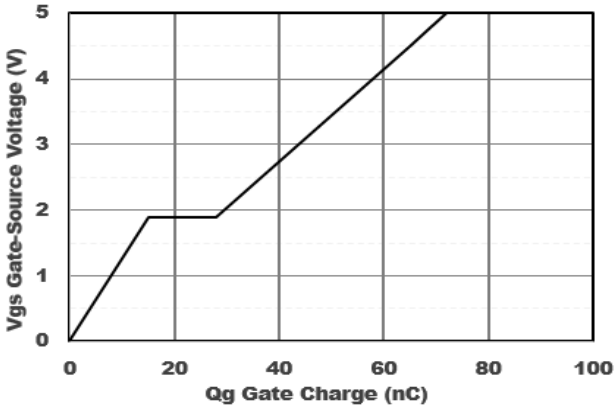


Figure4. Gate Charge

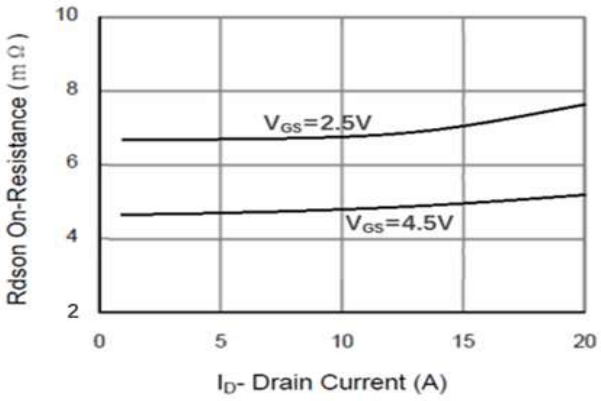


Figure5. Drain-Source on Resistance

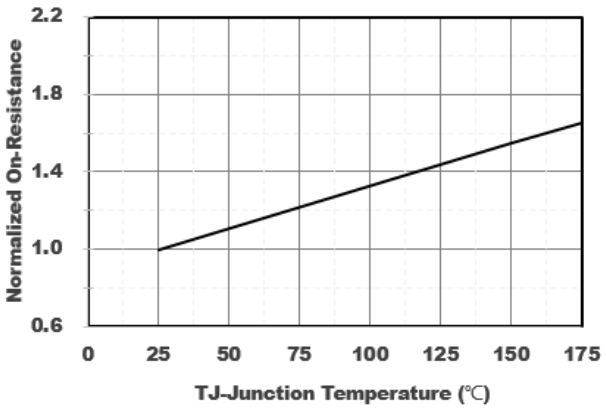


Figure6. Drain-Source on Resistance

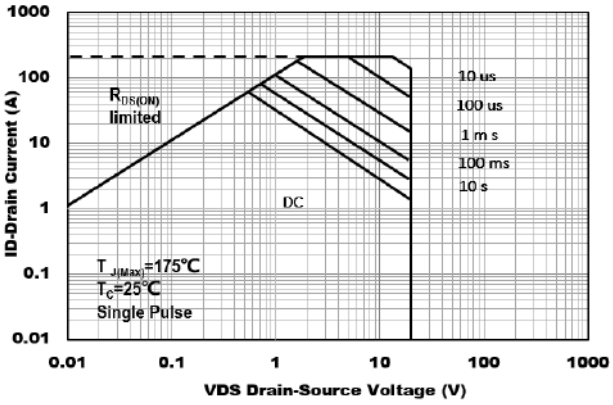


Figure7. Safe Operation Area

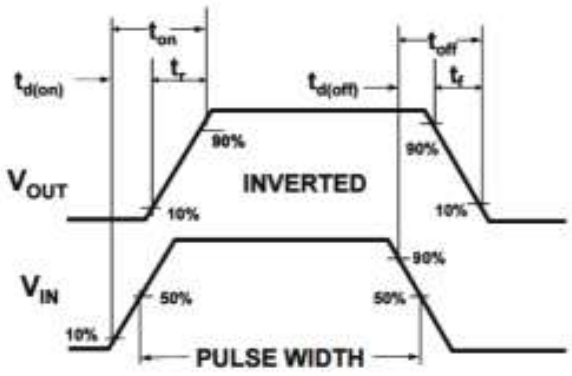
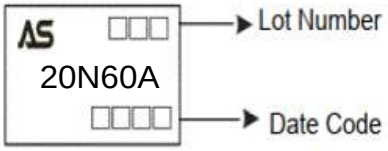


Figure8. Switching wave

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM20N60AKQ-R	20N60A	TO-252	Tape&Reel	2500/Reel

PACKAGE	MARKING
TO-252	

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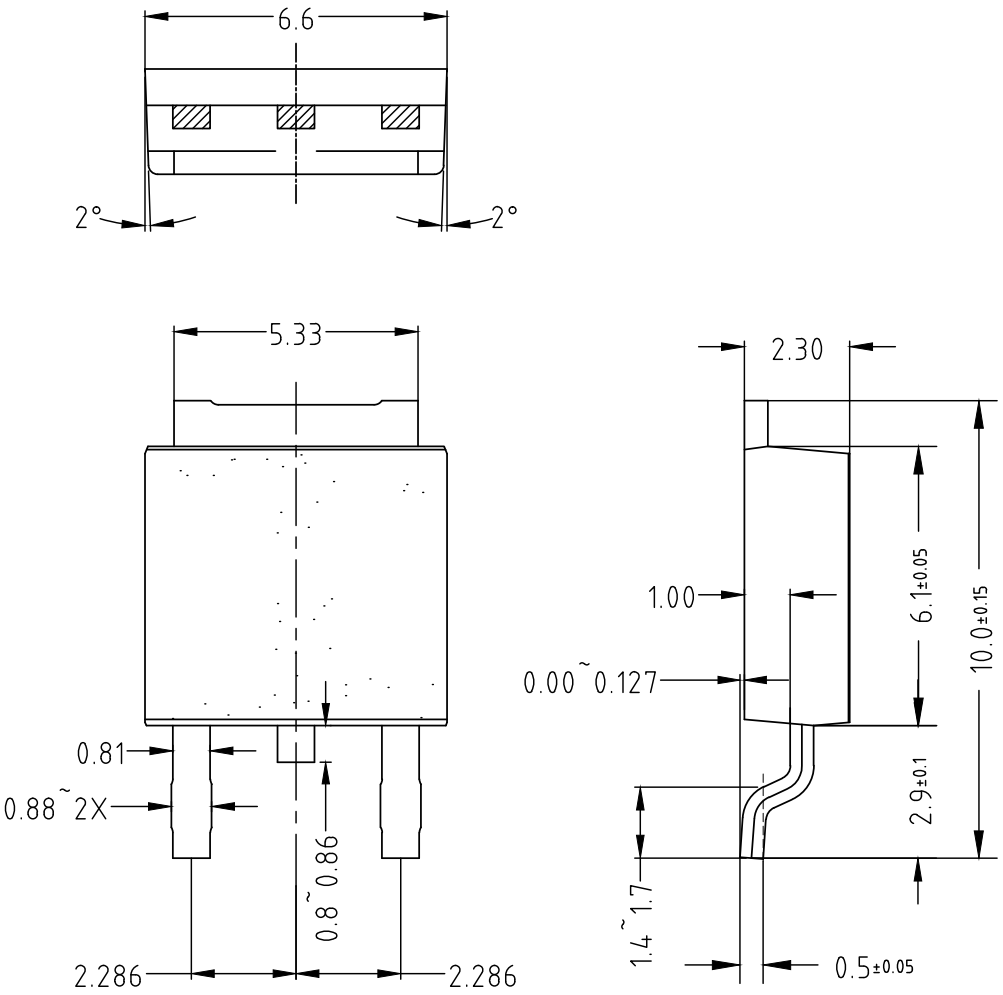
6.6
2°
2°
5.33
0.81
0.88~2X
0.8~0.86
2.286
2.286
2.30
1.00
0.00~0.127
6.1±0.05
10.0±0.15
2.9±0.1
1.4~1.7
0.5±0.05

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