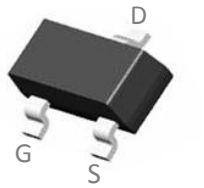
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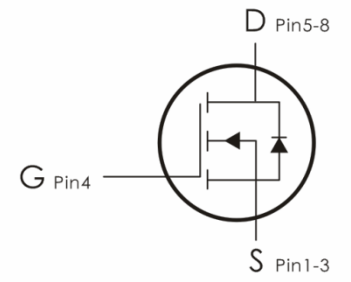
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features：

1) V_{DS}=30V,I_D=9A,$R_{DS(ON)}$<10mΩ @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.



Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
DO3012AA	3012A	SOT-23-3	3000pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous (T_A=25℃)[1]	9	A
	Drain Current – Continuous (T_A=100℃)[1]	5.8	
I_{DM}	Drain Current – Pulsed[2]	30	
E_{AS}	Single Pulse Avalanche Energy[3]	18	mj
P_D	Power Dissipation (T_A=25℃)[4]	1.5	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[1]	83	℃/W

Electrical Characteristics: (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	---	---	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=150V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
On Characteristics[3]						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.2	1.5	2.5	V
$R_{DS(ON)}$	Static Drain-Source On Resistance[2]	V_{GS}=10V,I_D=8A	---	9	10	mΩ
		V_{GS}=4.5V,I_D=6A	---	12	18	
G_{FS}	Forward Transconductance	V_{DS}=5V, I_D=8A	---	24	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	940	1316	pF
C_{oss}	Output Capacitance		---	131	183	
C_{rss}	Reverse Transfer Capacitance		---	109	153	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=15V, R_{GEN}=1.5Ω, V_{GS}=10V, I_D=8A	---	4.2	8.4	ns
t_r	Rise Time		---	8.2	15	ns
$t_{d(off)}$	Turn-Off Delay Time		---	31	62	ns
t_f	Fall Time		---	4	8	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=15V, I_D=8A	---	9.63	13.5	nC
Q_{gs}	Gate-Source Charge		---	3.88	5.4	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	3.44	4.8	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[2]	V_{GS}=0V,I_S=1A,T_J=25℃	---	---	1	V
I_S	Continuous Source Current[1,5]	VG=VD=0V	---	---	9	A
I_{SM}	Pulsed Source Current[2,5]		---	---	30	
Trr	Body Diode Reverse Recovery Time	I_F=8A , dI/dt=100A/μs , T_J=25℃	---	8	---	Ns
Qrr	Body Diode Reverse Recovery Charge		---	2.9	---	Nc

Notes:

1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=22A
4.The power dissipation is limited by 150℃ junction temperature
5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics:

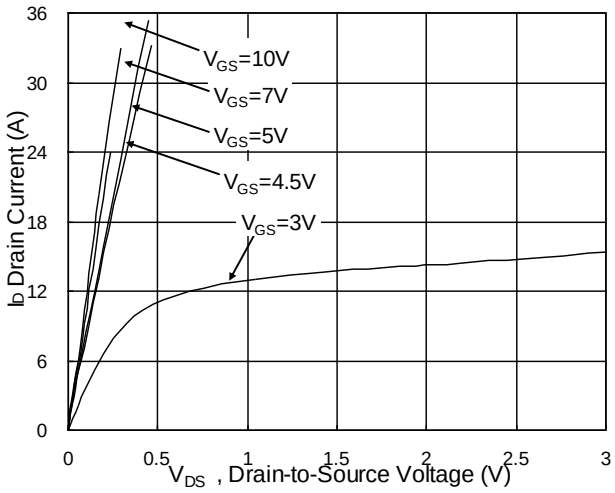


Fig.1 Typical Output Characteristics

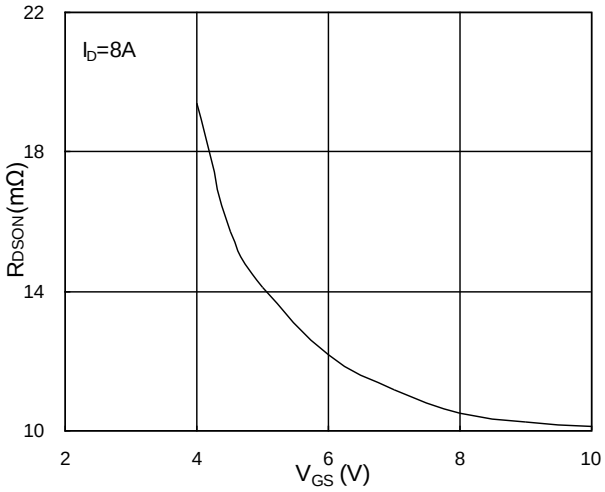
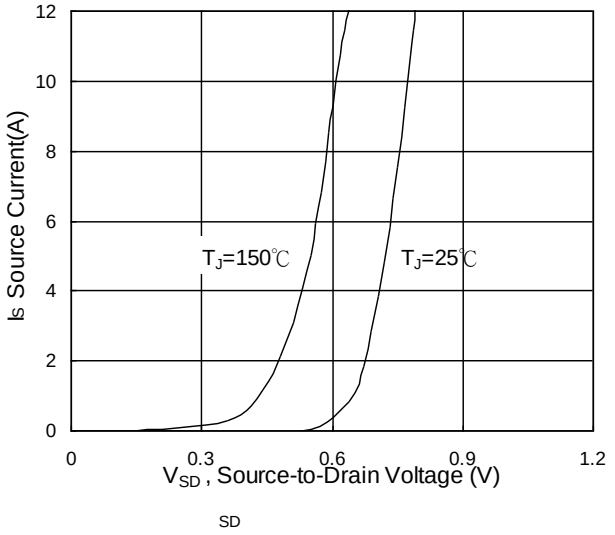


Fig.2 On-Resistance vs. G-S Voltage



SD

Fig.3 Forward Characteristics of Reverse

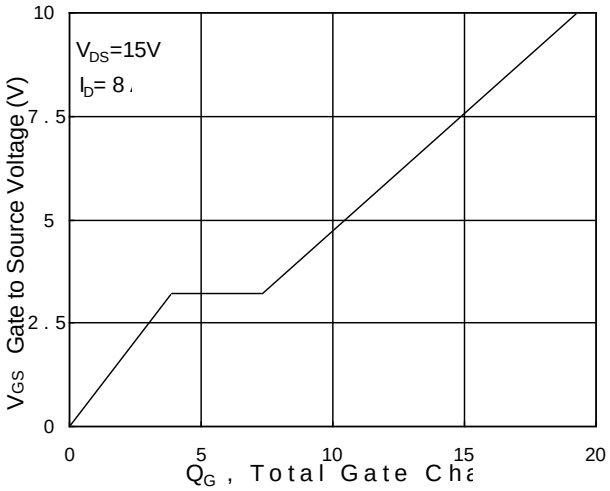


Fig.4 Gate-Charge Characteristics

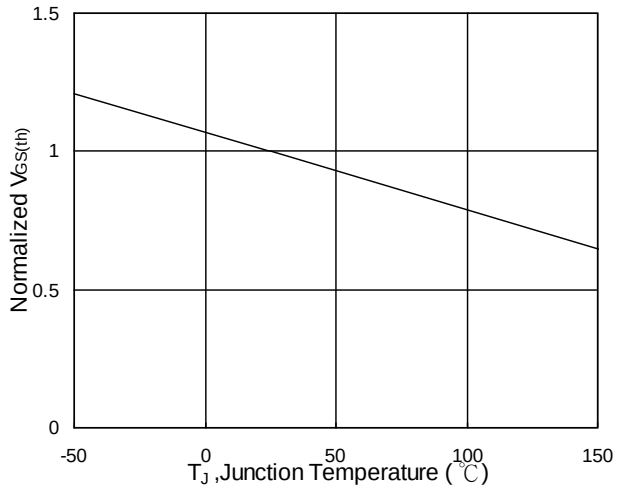


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

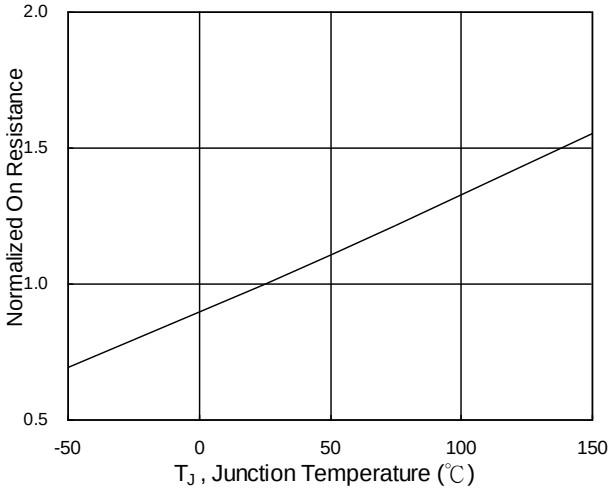


Fig.6 Normalized R_{DSON} vs. T_J

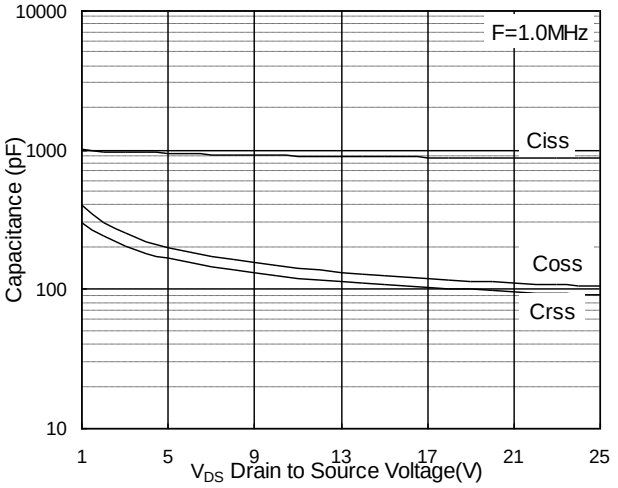


Fig.7 Capacitance

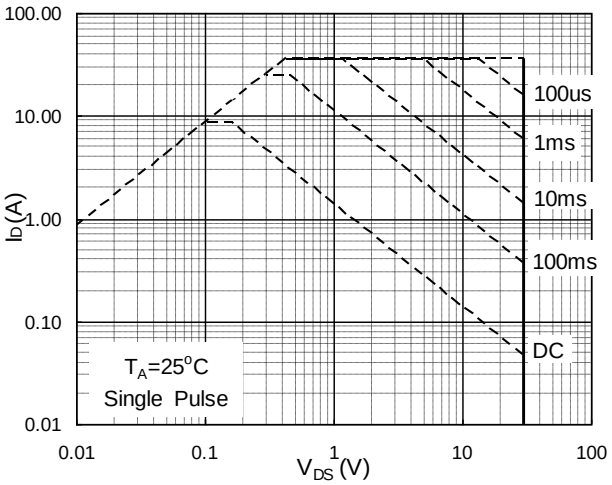


Fig.8 Safe Operating Area

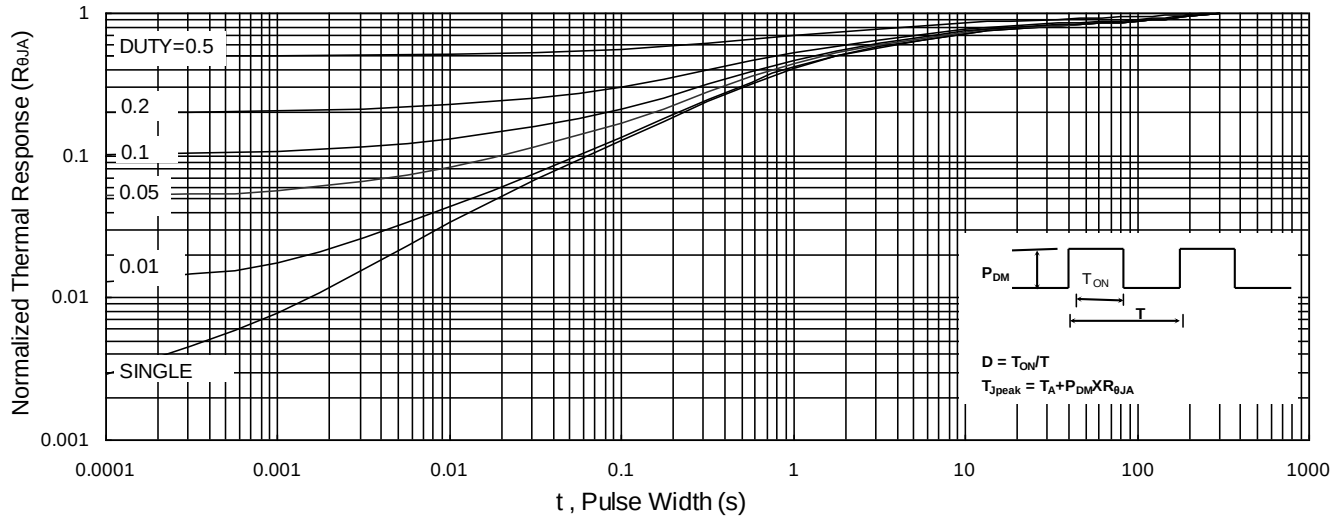
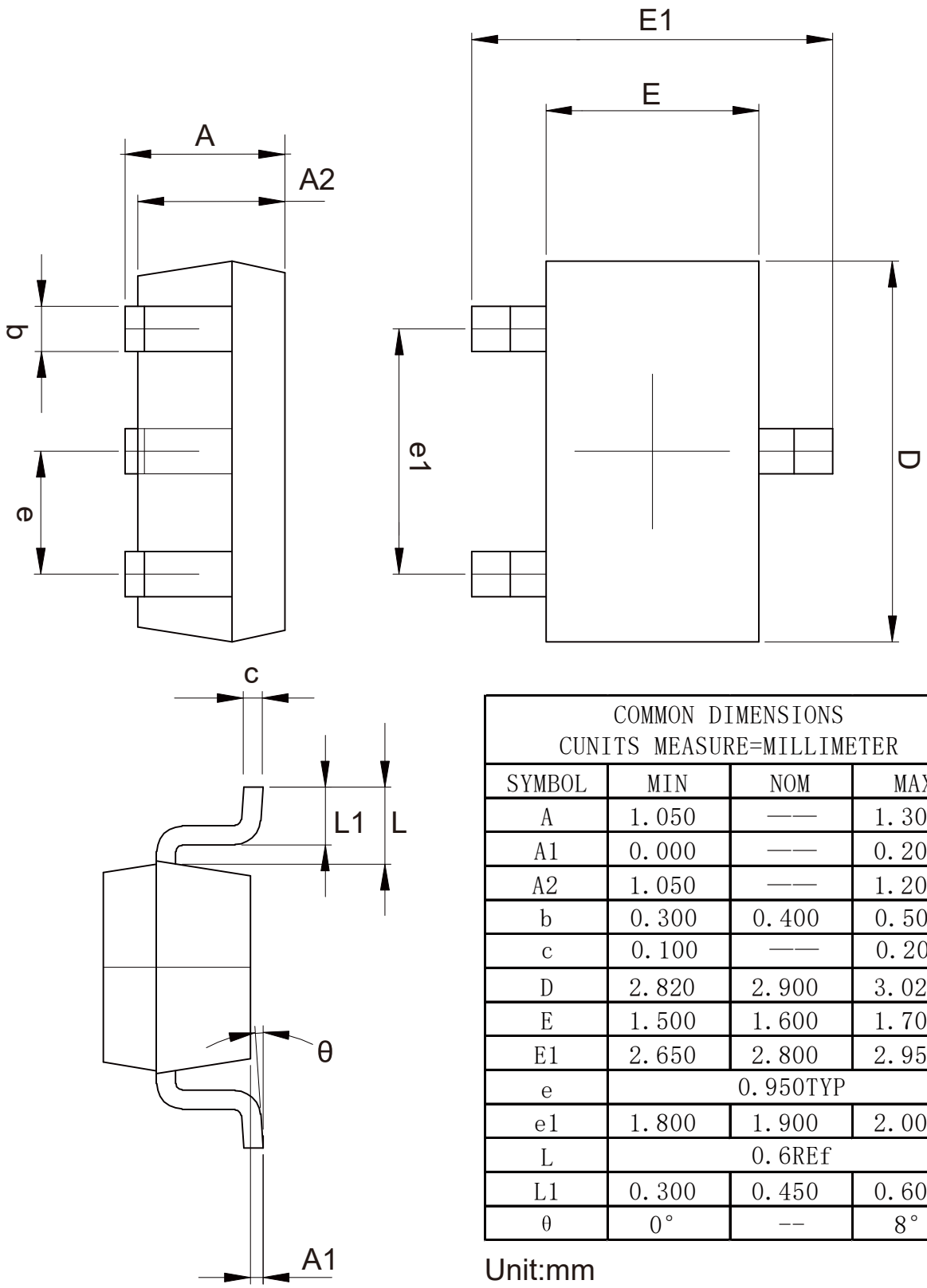


Fig.9 Normalized Maximum Transient Thermal Impedance

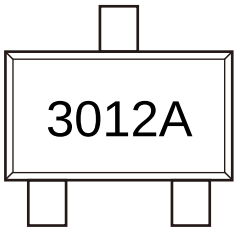
SOT-23-3Package Outline Data



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	1.050	——	1.300
A1	0.000	——	0.200
A2	1.050	——	1.200
b	0.300	0.400	0.500
c	0.100	——	0.200
D	2.820	2.900	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.6REf		
L1	0.300	0.450	0.600
θ	0°	--	8°

Unit:mm

Marking Information：



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