AS4008M

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
40V	22mΩ@10V	8A
	26mΩ@4.5V	

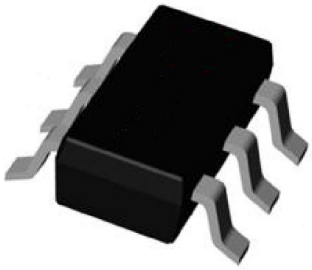
Feature

- High Cell Density Trenched P-ch MOSFETS
- Excellent RDSON
- Low Gate Charge

Application

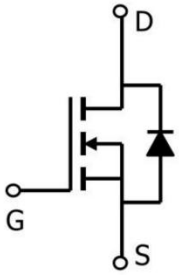
- Power Switching Application
- Hard Switched and High Frequency Circuits
- DC-DC Converter

Package

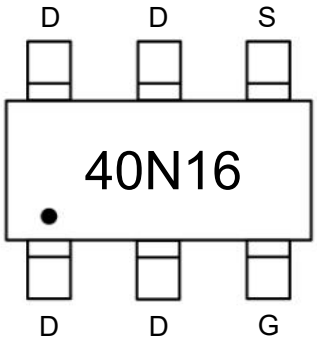


SOT-23-6L

Circuit diagram



Marking



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N-Channel Enhancement Mode MOSFET

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1)]	I_D	8	A
Pulsed Drain Current[2)]	I_{DM}	32	A
Single Pulse Avalanche Energy[3)]	E_{AS}	31	mJ
Avalanche Current	I_{AS}	25	A
Power Dissipation[4)]	P_D	1.1	W
Thermal Resistance from Junction to Ambient[1)]	$R_{\theta JA}$	110	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}= 0V, I_D =250μA	40			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =32V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.6	2.5	V
Drain-source on-resistance[2)]	$R_{DS(on)}$	V_{GS} =10V, I_D =7A		16	22	mΩ
		V_{GS} =4.5V, I_D =6A		19	26	
Forward tranconductance	g_{FS}	V_{DS} =5V,I_D =7A		10		S
Dynamic characteristics[6)]						
Input Capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f =1MHz		1013		pF
Output Capacitance	C_{oss}			107		
Reverse Transfer Capacitance	C_{rss}			76		
Total Gate Charge	Q_g	V_{DS} =32V,V_{GS} =4.5V, I_D =7A		9.8		nC
Gate-Source Charge	Q_{gs}			2.8		
Gate-Drain Charge	Q_{gd}			3.9		
Turn-on delay time	$t_{d(on)}$	V_{DD}=20V,V_{GS}=10V R_G=3.3Ω,I_D=7A		2.8		nS
Turn-on rise time	t_r			40.4		
Turn-off delay time	$t_{d(off)}$			22.8		
Turn-off fall time	t_f			6.4		
Source-Drain Diode characteristics						
Diode Forward Current[1)5)]	I_S	V_G=V_D=0V,Force Current			8	A
Diode Forward voltage[2)]	V_{SD}	V_{GS} =0V, I_S=1A, TJ=25℃			1	V

Notes:

1) The data tested by surface mounted on a 1 inch² 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}=-27A

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.

6) Guaranteed by design, not subject to production testing.

Typical Characteristics

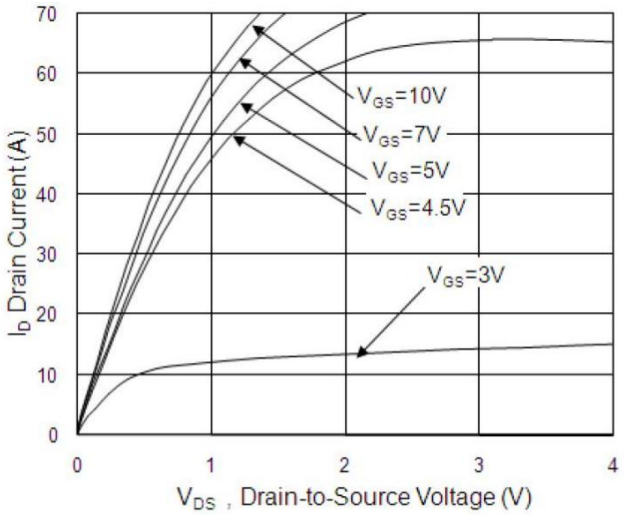


Fig.1 Typical Output Characteristics

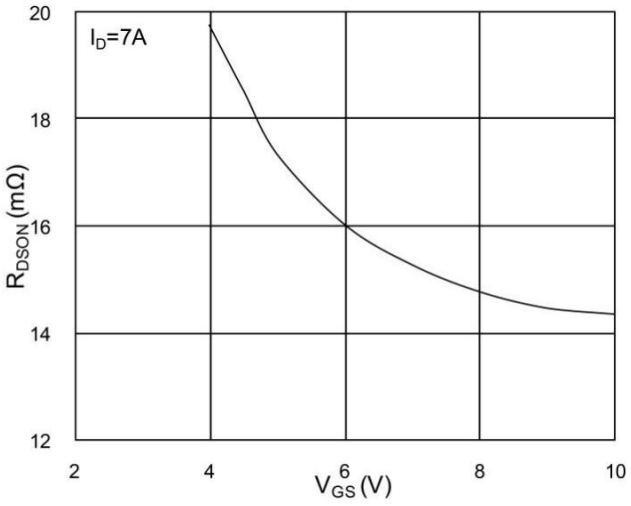


Fig.2 On-Resistance vs. G-S Voltage

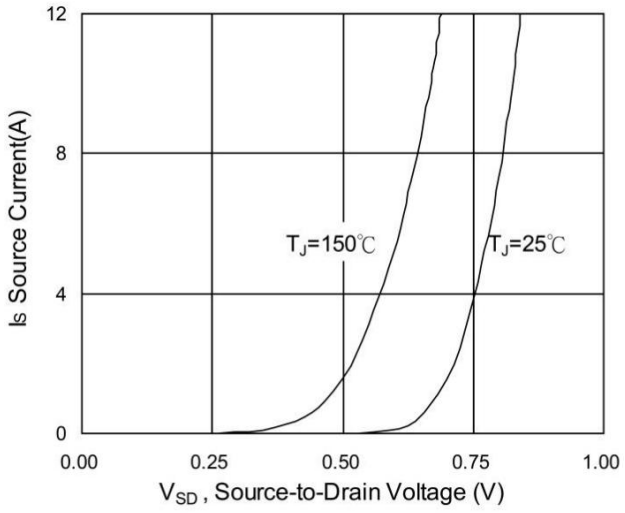


Fig.3 Forward Characteristics of Reverse

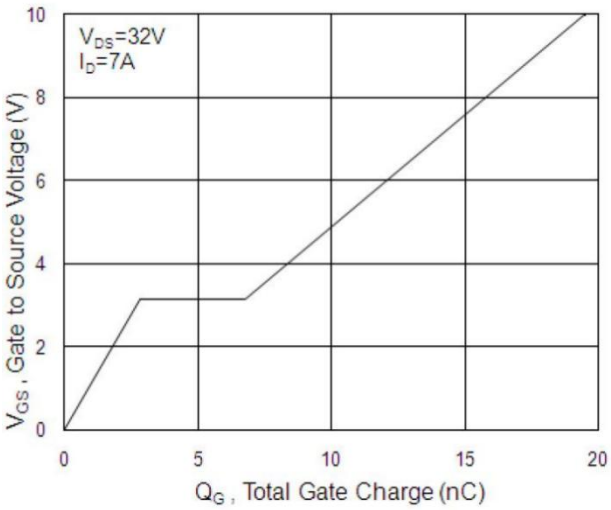


Fig.4 Gate-Charge Characteristics

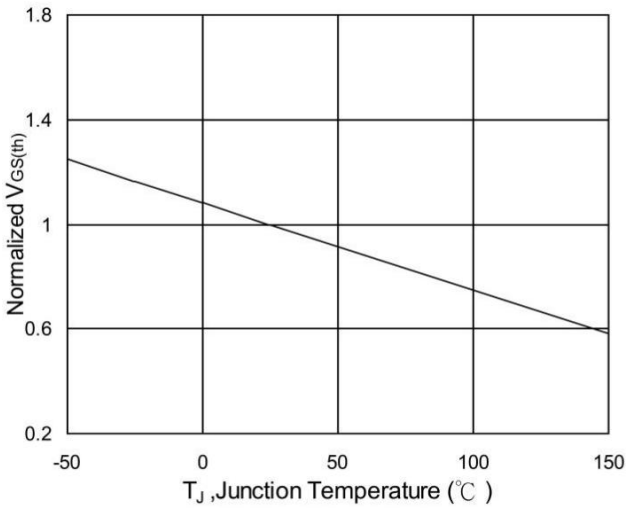


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

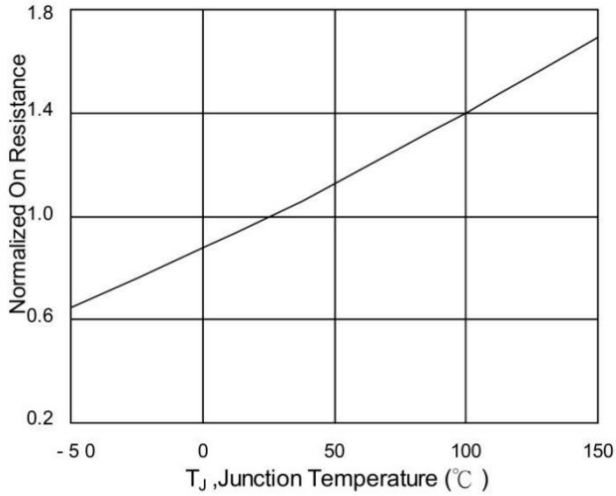


Fig.6 Normalized R_{DSON} vs. T_J

Typical Characteristics

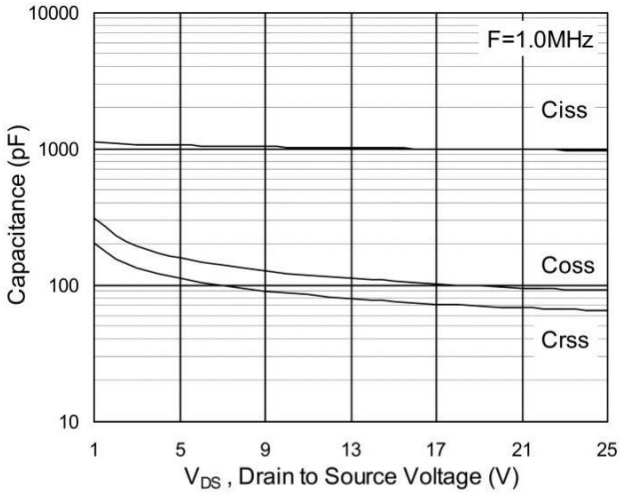


Fig.7 Capacitance

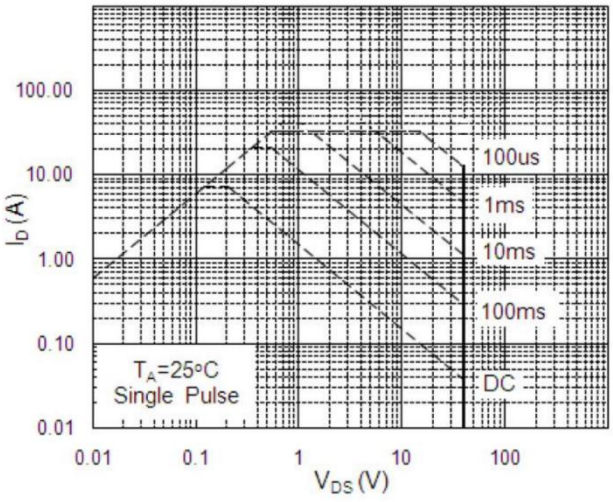


Fig.8 Safe Operating Area

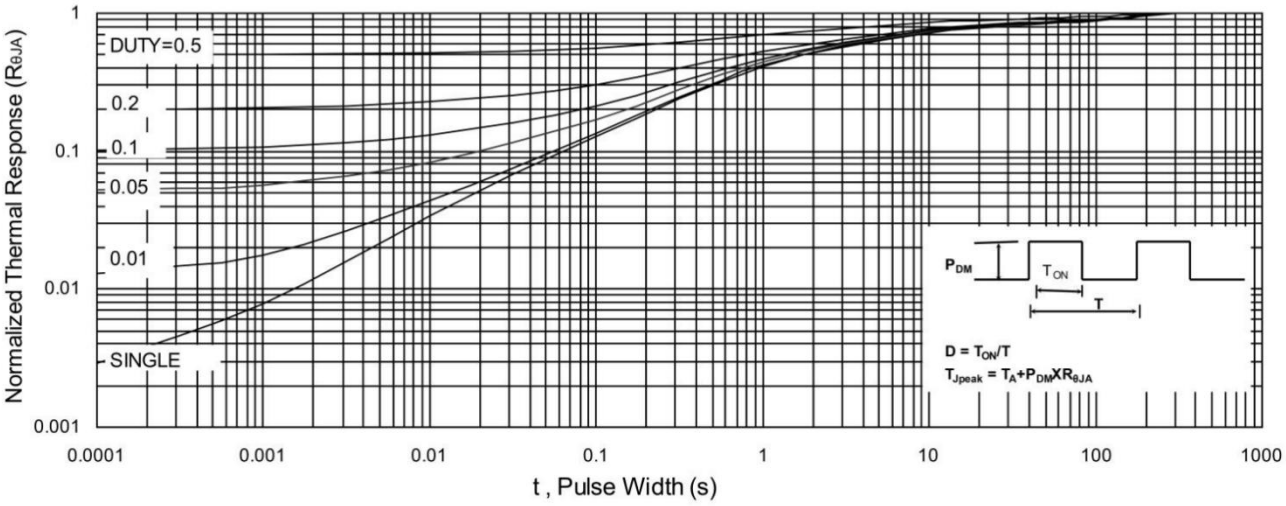
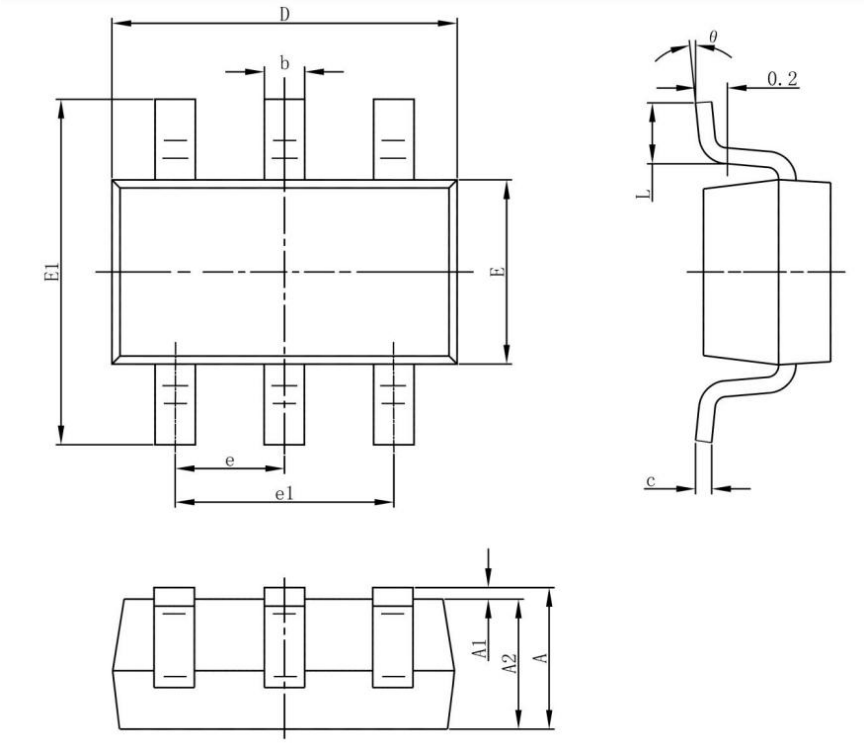


Fig.9 Normalized Maximum Transient Thermal Impedance

SOT-23-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 (BSC)		0.037 (BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°