Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	16mΩ@10V	8A
	19mΩ@4.5V	

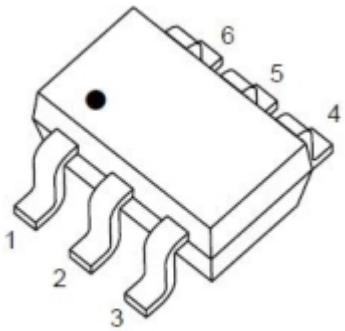
Feature

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

Application

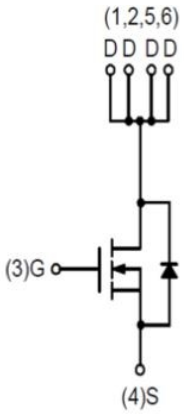
- Power Switching Application
- Hard Switched and High Frequency Circuits
- DC-DC Converter

Package

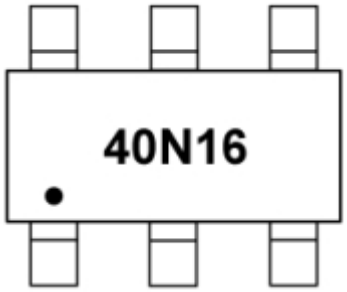


SOT-23-6L

Circuit diagram



Marking



Absolute maximum ratings

(T_a=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	A
Avalanche Current	I_{AS}	25	A
Power Dissipation	P_D	1.1	W
Thermal Resistance Junction-ambient+	$R_{\theta JA}$	110	℃/ W
Operating Junction Temperature Range	$T_{J,}$	150	℃
Storage Temperature Range	T_{STG}	-55 to 150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =32V,V_{GS} = 0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.6	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =7A		16	22	mΩ
		V_{GS} =4.5V, I_D =6A		19	26	
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=7A		10		S
Dynamic Characteristics						
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		
Switching Characteristics						
Total gate charge@4.5V	Q_g	V_{DS}=32V, V_{GS}=4.5V, I_D =7A		9.8		pF
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		
Diode Characteristics						
Continuous Source Current[1,5]	I_S	V_{GS}=0V,I_S=9A, Force Current			8	A
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃			1	V

Note:

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 E AS 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.

Typical Characteristics

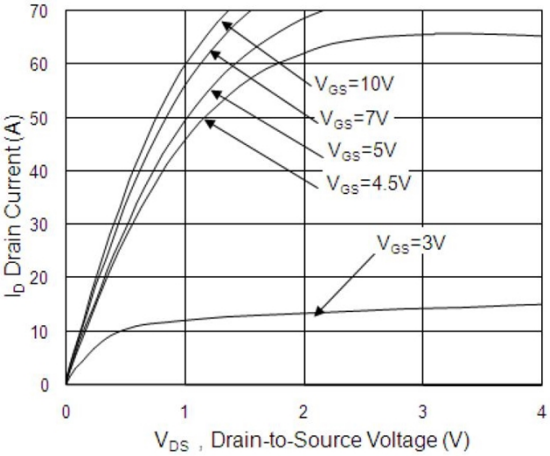


Fig.1 Typical Output Characteristics

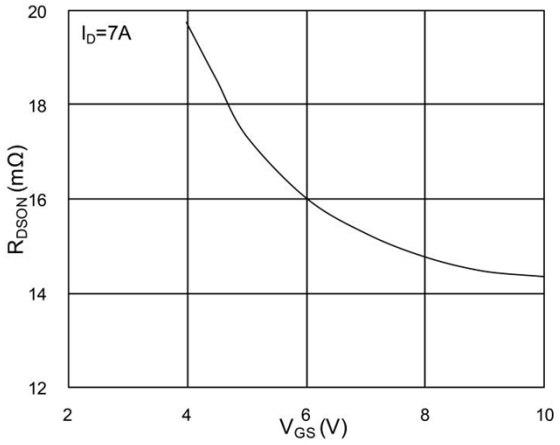


Fig.2 On-Resistance vs. G-S Voltage

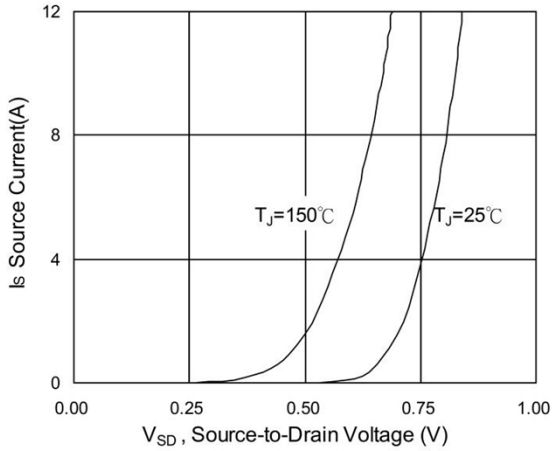


Fig.3 Forward Characteristics of Reverse

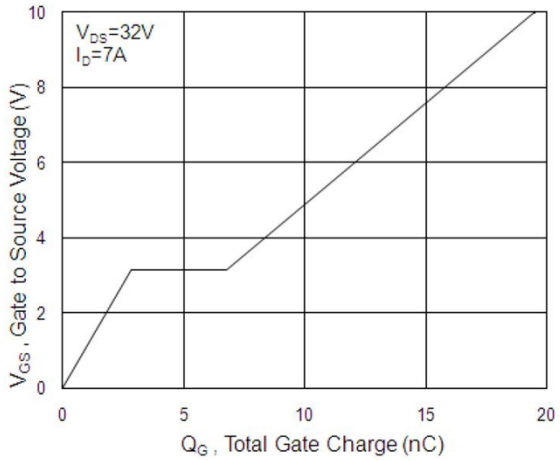


Fig.4 Gate-Charge Characteristics

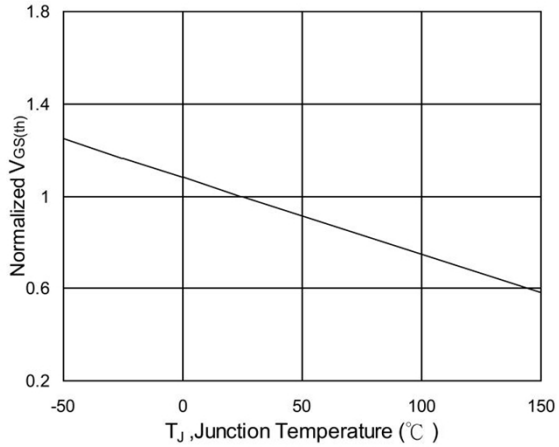


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

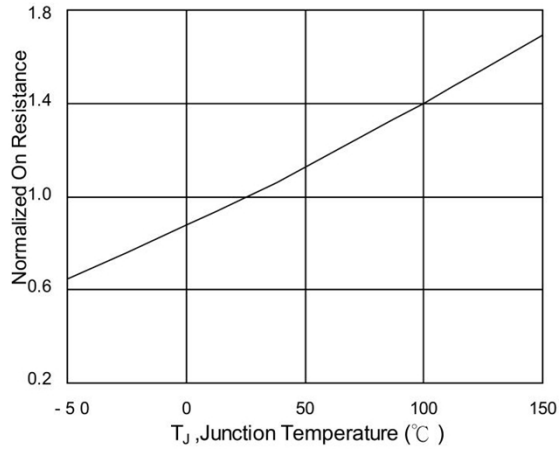


Fig.6 Normalized R_{DSON} vs. T_J

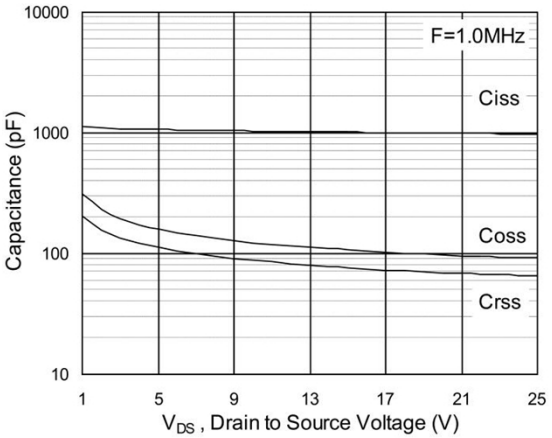


Fig.7 Capacitance

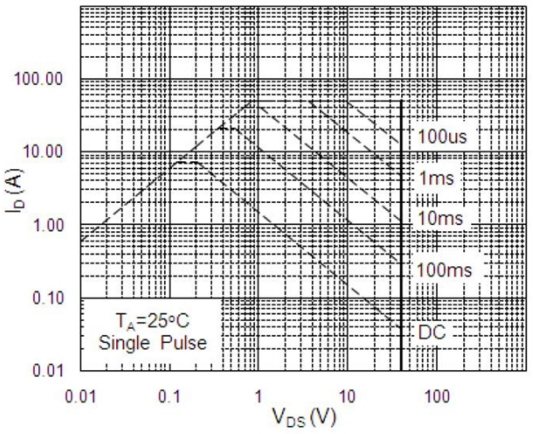


Fig.8 Safe Operating Area

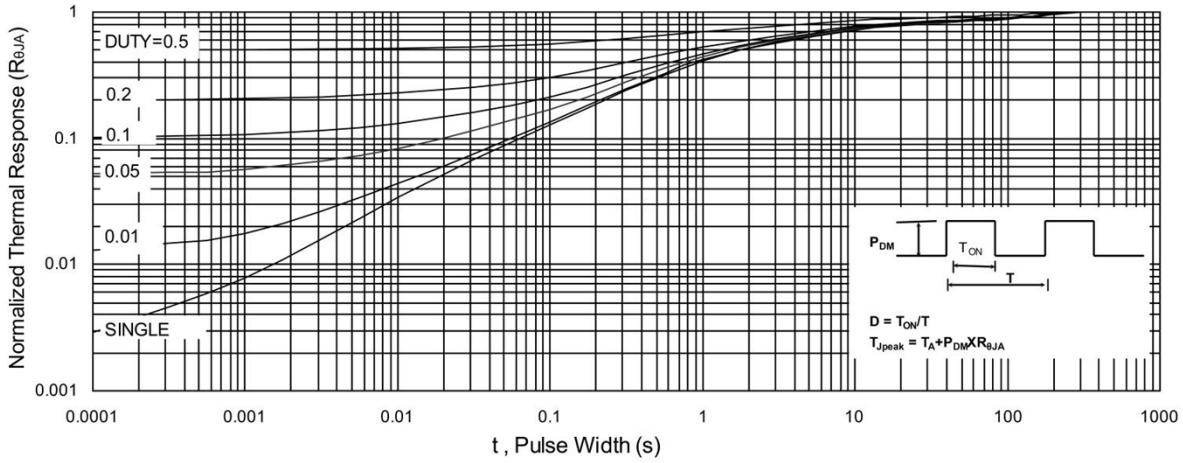
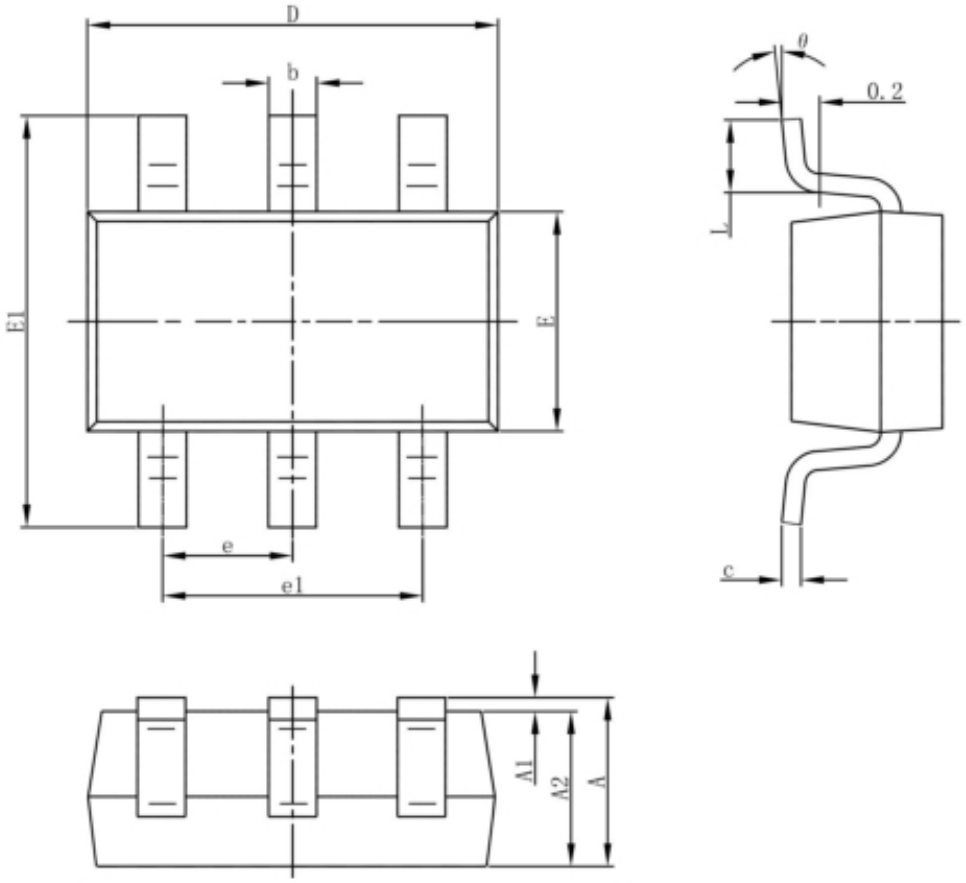


Fig.9 Normalized Maximum Transient Thermal Impedance

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°