

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-40V	28mΩ@-10V	-7A
	38mΩ@-4.5V	

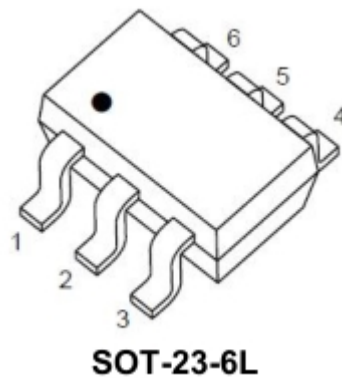
Feature

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

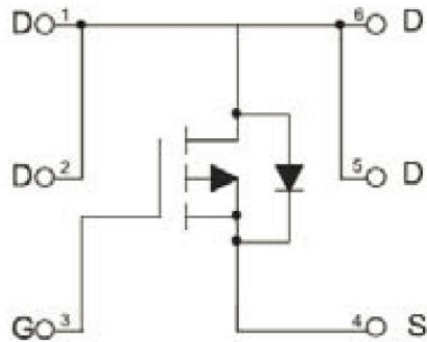
Applications

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

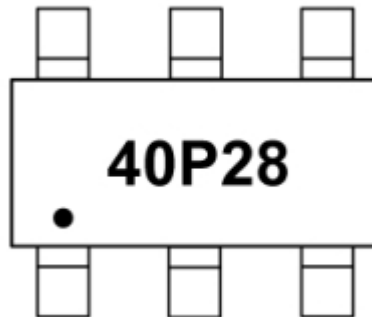
Package



Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C 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	-7	A
Pulsed Drain Current ²	I _{DM}	-28	A
Single Pulse Avalanche Energy ³	E _{AS}	40	mJ
Avalanche Current	I _{AS}	-27	A
Power Dissipation ⁴	P _D	1.1	W
Thermal Resistance from Junction to Ambient ¹	R _{θJA}	110	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 To 150	°C

Electrical characteristics

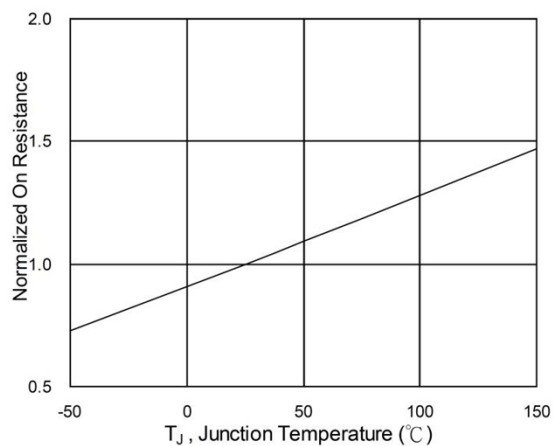
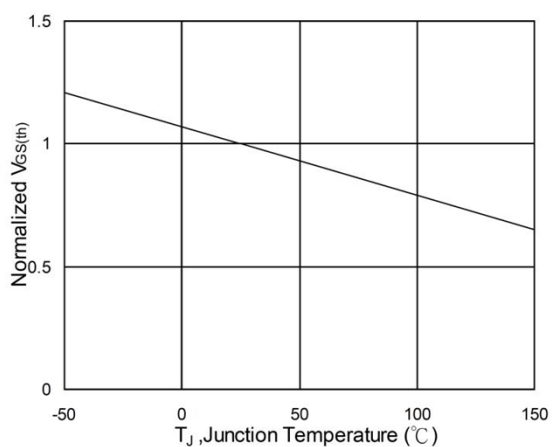
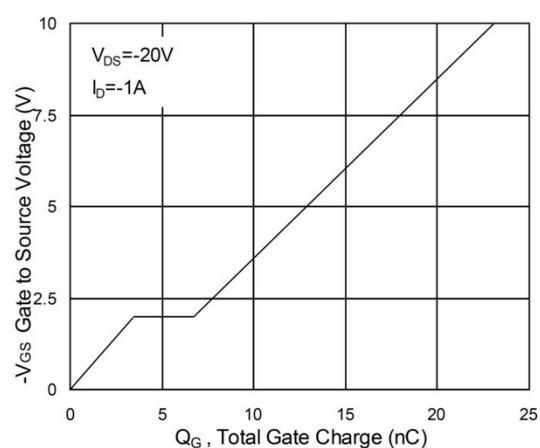
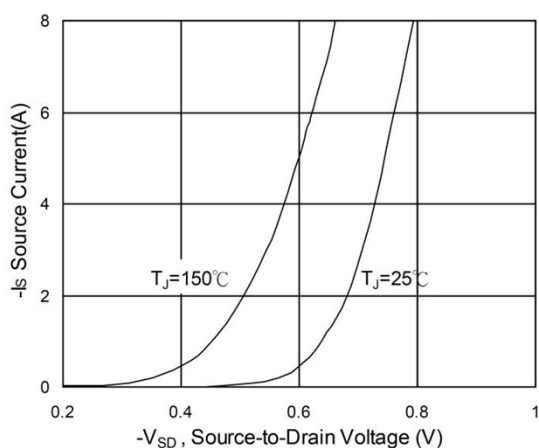
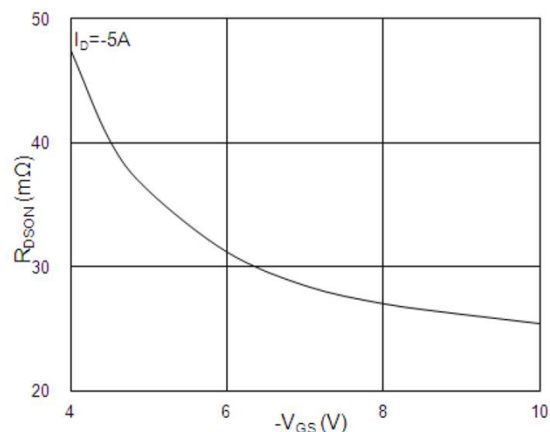
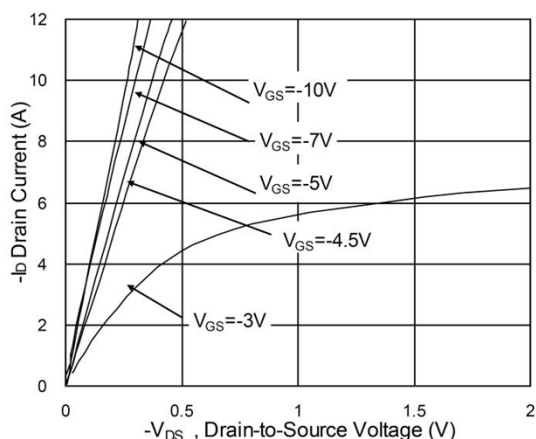
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static 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-Source Leakage	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V			±100	uA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250μA	-1.2	-1.5	-2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -5A		28	35	mΩ
		V _{GS} = -4.5V, I _D = -4A		38	50	
Forward Transconductance	g _{FS}	V _{DS} = -5V,I _D = -8A		12		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} =0V, f=1MHz		1415		pF
Output Capacitance	C _{oss}			134		
Reverse Transfer Capacitance	C _{rss}			102		
Switching Characteristics						
Total Gate Charge@-4.5V	Q _g	V _{DS} = -15V,, I _D = -4.5A, I _D = -1A		11.5		nC
Gate-Source Charge	Q _{gs}			3.5		
Gate-Drain Charge	Q _{gd}			3.3		
Turn-on Delay Time	T _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, R _G =3.3Ω, I _D = -1A		22		nS
Turn-on Rise Time	T _r			15.7		
Turn-off Delay Time	T _{d(off)}			59		
Turn-off Fall Time	T _f			5.5		
Drain-Source Diode Characteristics						
Continuous Source Current	I _S	V _G =V _D =0V,Force Current			-7	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S = -1A, T _J =25°C			-1.2	V

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
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°C 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



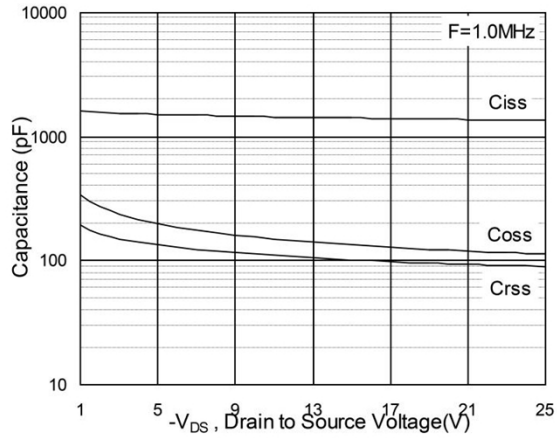


Fig.7 Capacitance

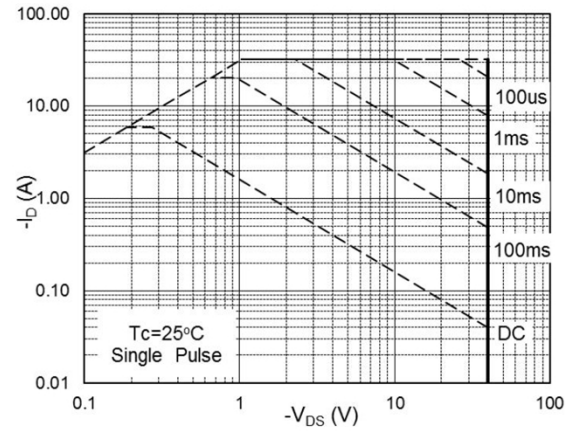


Fig.8 Safe Operating Area

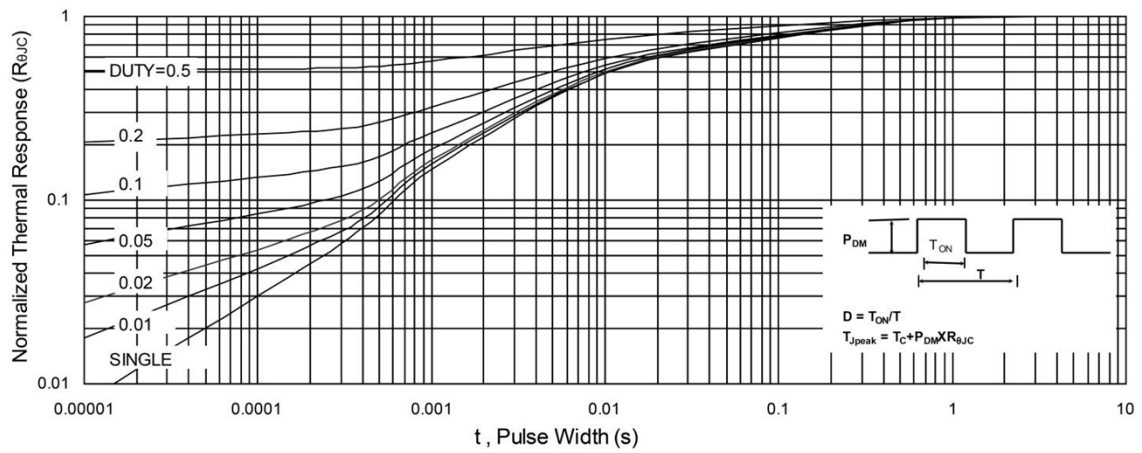
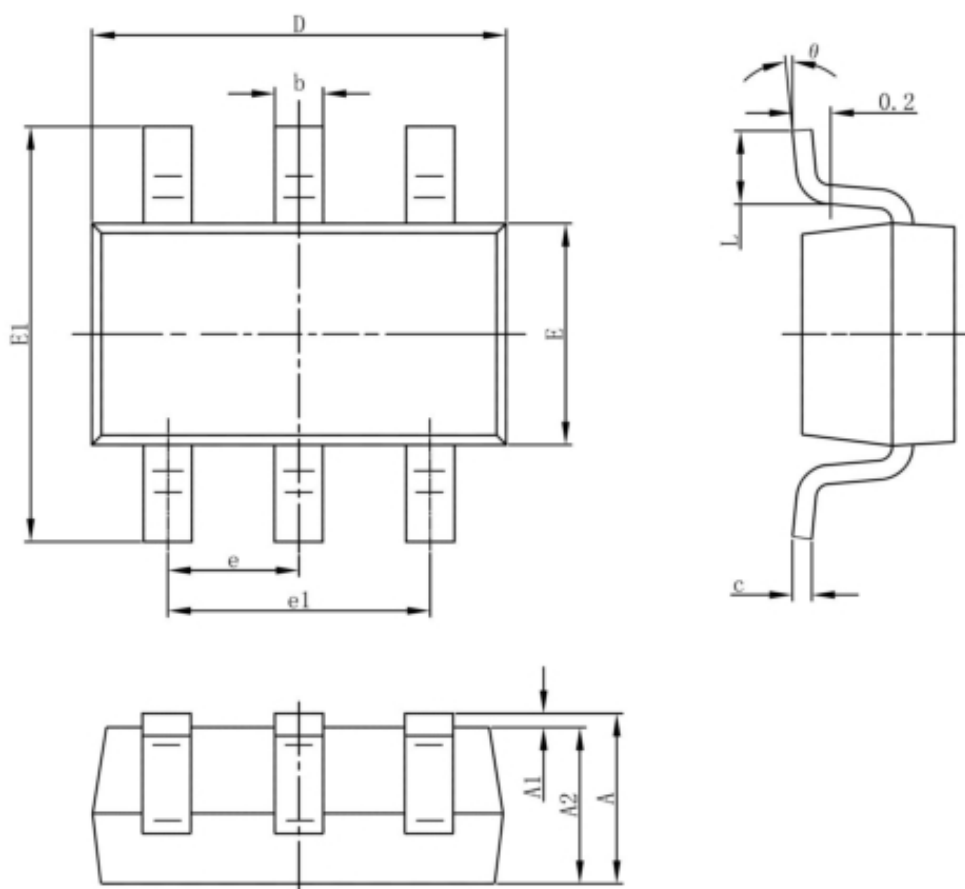


Fig.9 Normalized Maximum Transient Thermal Impedance

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°