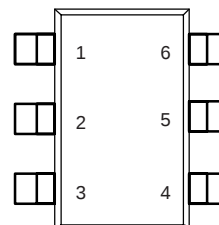


Features

- ◆ -20V, -5A, $R_{DS(ON)} = 35m\Omega @ V_{GS} = -4.5V$
- ◆ Improved dv/dt capability
- ◆ Fast switching
- ◆ Green Device Available

SOT23-6

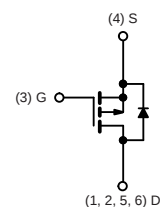
RoHS
COMPLIANT



Applications

- ◆ Notebook
- ◆ Load Switch
- ◆ Networking

Equivalent Circuit



Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Drain Current – Continuous ($T_A=25^\circ\text{C}$)	-5	A
	Drain Current – Continuous ($T_A=70^\circ\text{C}$)	-3.2	A
I_{DM}	Drain Current – Pulsed ¹	-20	A
P_D	Power Dissipation ($T_A=25^\circ\text{C}$)	1.56	W
	Power Dissipation – Derate above 25°C	0.012	W/ $^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 125	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	80	$^\circ\text{C/W}$

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

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-20	---	---	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-20V$, $V_{GS}=0V$, $T_J=25^\circ\text{C}$	---	---	-1	μA
		$V_{DS}=-16V$, $V_{GS}=0V$, $T_J=125^\circ\text{C}$	---	---	-10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V$, $V_{DS}=0V$	---	---	± 100	nA

On Characteristics

$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-4A$	---	35	50	m Ω
		$V_{GS}=-2.5V$, $I_D=-3A$	---	45	70	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-0.5	-0.65	-1.1	V
gfs	Forward Transconductance	$V_{DS}=-10V$, $I_S=-3A$	---	6	---	S

Dynamic and switching Characteristics

Q_g	Total Gate Charge ^{2, 3}	$V_{DS}=-10V$, $V_{GS}=-4.5V$, $I_D=-2A$	---	6.4	---	nC
Q_{gs}	Gate-Source Charge ^{2, 3}		---	0.9	---	
Q_{gd}	Gate-Drain Charge ^{2, 3}		---	1.6	---	
$T_{d(on)}$	Turn-On Delay Time ^{2, 3}	$V_{DD}=-10V$, $V_{GS}=-4.5V$, $R_G=6\Omega$ $I_D=-2A$	---	5	---	nS
T_r	Rise Time ^{2, 3}		---	17.4	---	
$T_{d(off)}$	Turn-Off Delay Time ^{2, 3}		---	40.7	---	
T_f	Fall Time ^{2, 3}		---	11.4	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V$, $V_{GS}=0V$, $F=1\text{MHz}$	---	540	---	pF
C_{oss}	Output Capacitance		---	80	---	
C_{rss}	Reverse Transfer Capacitance		---	75	---	

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-5	A
I_{SM}	Pulsed Source Current		---	---	-10	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-1A$, $T_J=25^\circ\text{C}$	---	---	-1.2	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

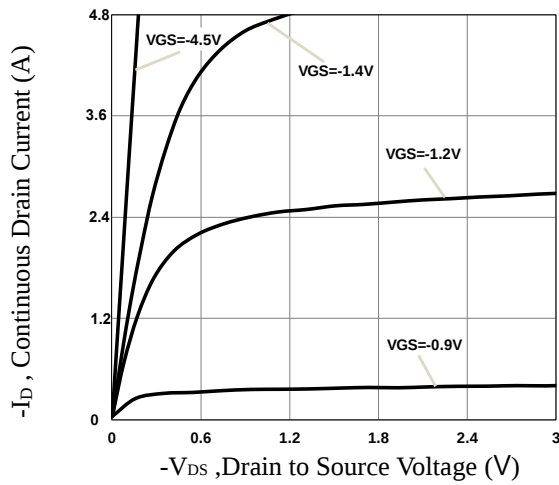


Fig.1 Typical Output Characteristics

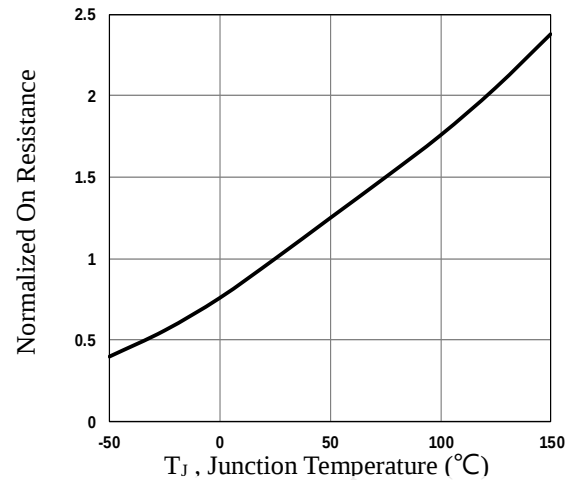


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

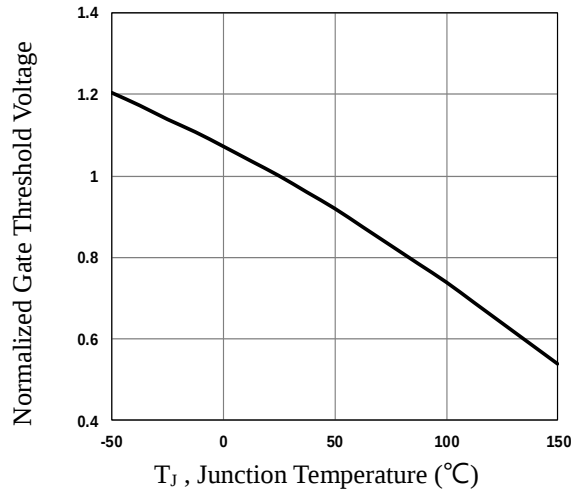


Fig.3 Normalized V_{th} vs. T_J

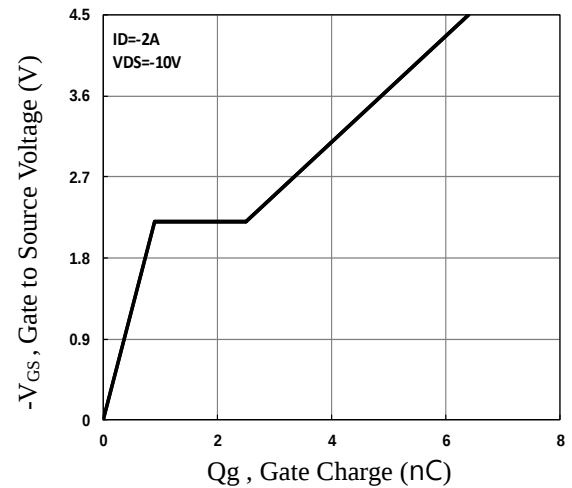


Fig.4 Gate Charge Waveform

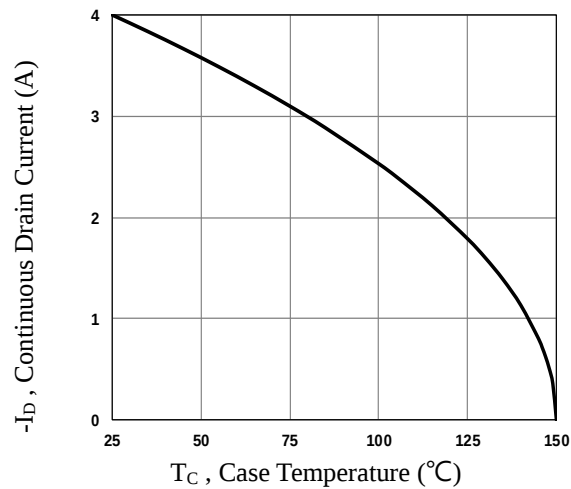


Fig.5 Continuous Drain Current vs. T_C

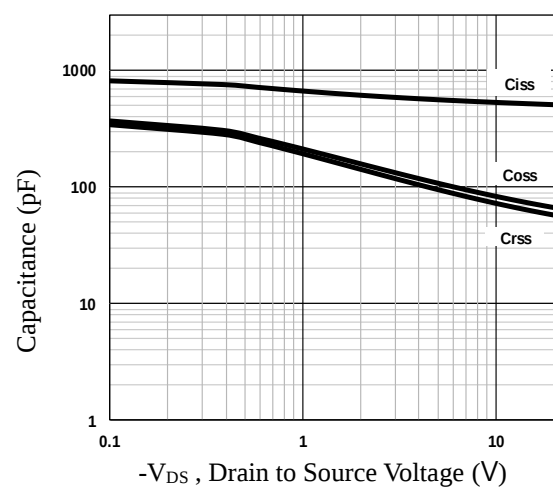


Fig.6 Capacitance Characteristics

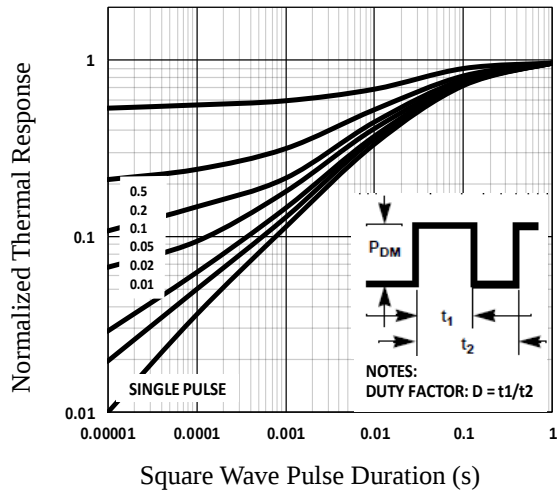


Fig.7 Normalized Transient Impedance

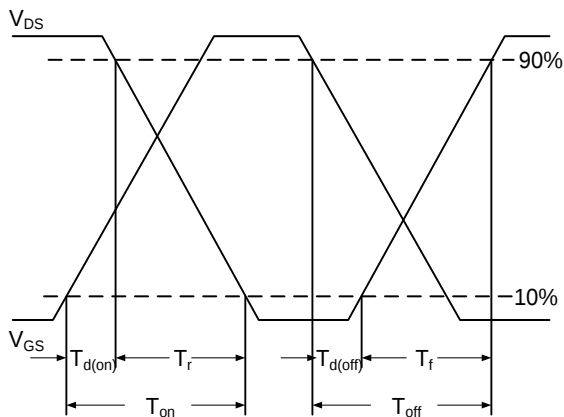
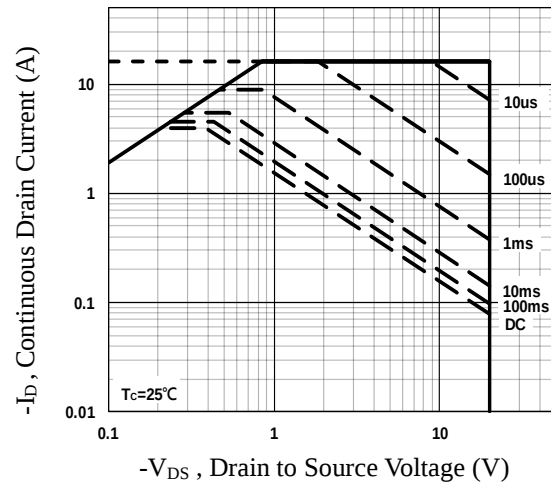
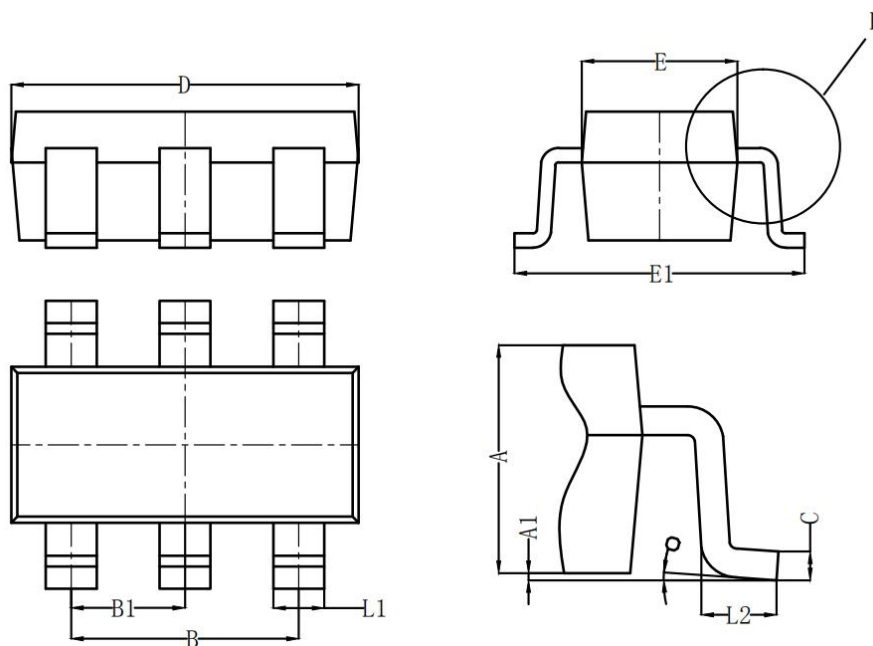


Fig.9 Switching Time Waveform

SOT23-6 Package outline



Symbol	Dimensions (mm)		
	Min	Typ	Max
A	1.050	1.100	1.150
A1	0.000	0.050	0.100
L1	0.300	0.400	0.500
C	0.100	0.150	0.200
D	2.820	2.920	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
B	1.800	1.900	2.000
B1	0.950 Typ		
L2	0.300	0.450	0.600
O	0°	4°	8°