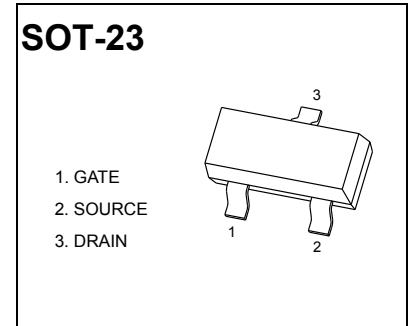


SOT-23 Plastic-Encapsulate MOSFETS

100V N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	3.5Ω @ 10V	200mA
	4Ω @ 4.5V	



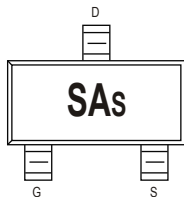
FEATURE

- Surface Mount Package
- High Density Cell Design for Extremely Low $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable

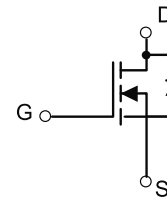
APPLICATION

- Small Servo Motor Controls
- Power MOSFET Gate Drivers
- Switching Application

MARKING



Equivalent circuit



PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	Q'TY/Carton (pcs)
SOT-23	7'	330	3000	203×203×195	45000	438×438×220	180000

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
N-MOSFET			
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (note 1)	I_D	0.2	A
Pulsed Drain Current ($t_p=10\mu\text{s}$)	I_{DM}	0.8	A
Continuous Source-Drain Diode Current	I_S	0.17	A
Power Dissipation	P_D	0.3	W
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	400	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260	$^\circ\text{C}$



MOSFET ELECTRICAL CHARACTERISTICS

T_a = 25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 100V, V _{GS} = 0V Ta=25 C			1	μA
		V _{DS} = 80V, V _{GS} = 0V Ta=125 C			100	uA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±10	uA
Gate threshold voltage (note 2)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	2.0	3.0	V
Drain-source on-resistance(note 2)	R _{DS(on)}	V _{GS} = 10V, I _D = 0.2A		3.5	6	Ω
		V _{GS} = 4.5V, I _D = 0.1A		4	8	Ω
Forward tranconductance(note 2)	g _{FS}	V _{DS} = 10V, I _D = 170mA	80			mS
Diode forward voltage	V _{SD}	I _{SD} = 200mA, V _{GS} = 0V		0.85	1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz		31.6		pF
Output Capacitance	C _{oss}			2.8		pF
Reverse Transfer Capacitance	C _{rss}			2		pF
SWITCHING CHARACTERISTICS (note 3,4)						
Turn-on delay time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 50V, I _D = 0.2A, R _{GEN} = 3.3 Ω		2		ns
Turn-on rise time	t _r			3.1		ns
Turn-off delay time	t _{d(off)}			6.5		ns
Turn-off fall time	t _f			15		ns
Total Gate Charge	Q _g	V _{DS} = 50V, I _D = 0.2A, V _{GS} = 10V		0.74		nC
Gate-Source Charge	Q _{gs}			0.08		nC
Gate-Drain Charge	Q _{gd}			0.26		nC

Notes :

- 1.Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse width=300μs, duty cycle≤2%.
3. witching characteristics are independent of operating junction temperature.
- 4.Garanted by design, not subject to producing.

Typical Characteristics

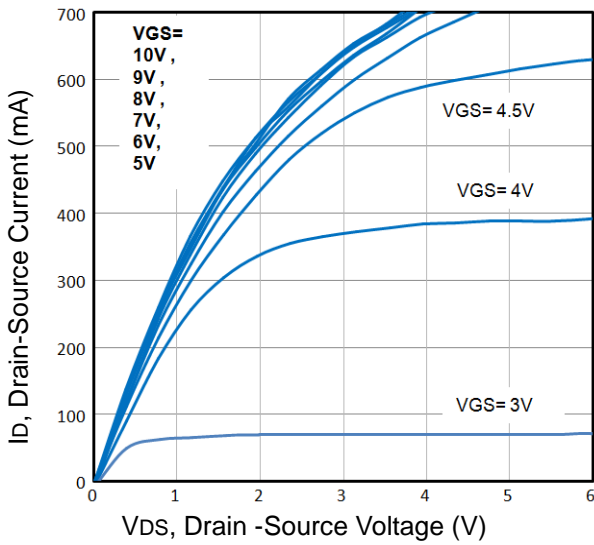


Fig1. Typical Output Characteristics

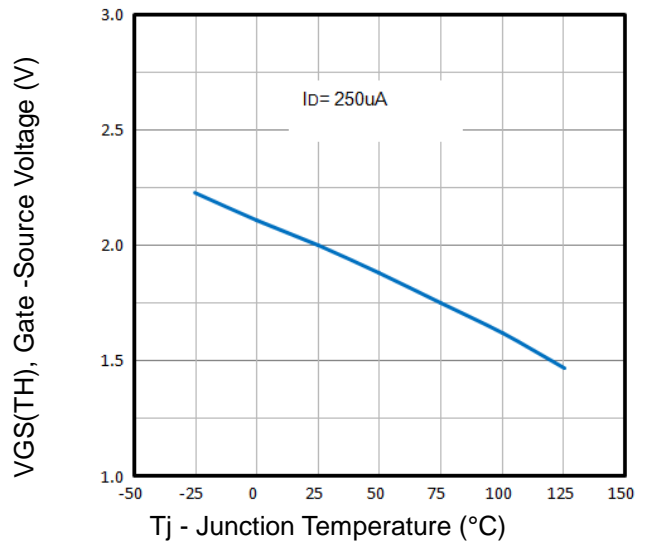


Fig2. Normalized Threshold Voltage Vs. Temperature

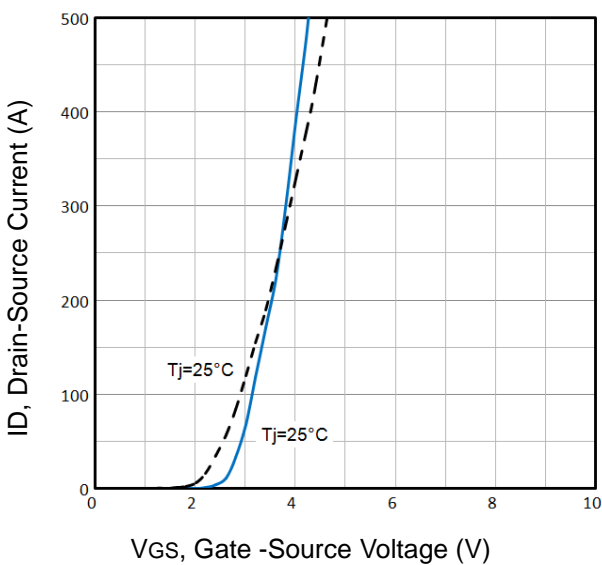


Fig3. Typical Transfer Characteristics

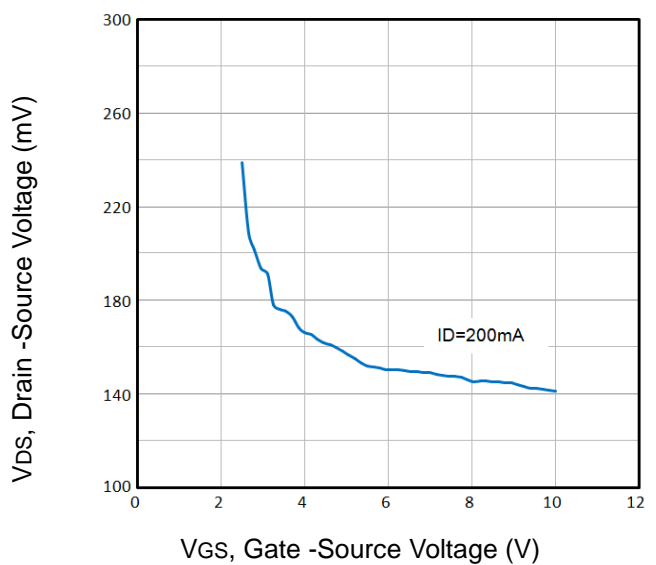


Fig4. Drain-Source Voltage vs Gate-Source Voltage

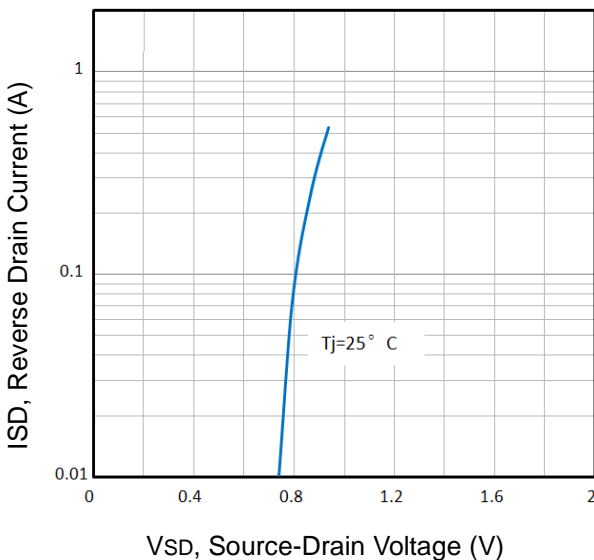


Fig5. Typical Source-Drain Diode Forward Voltage

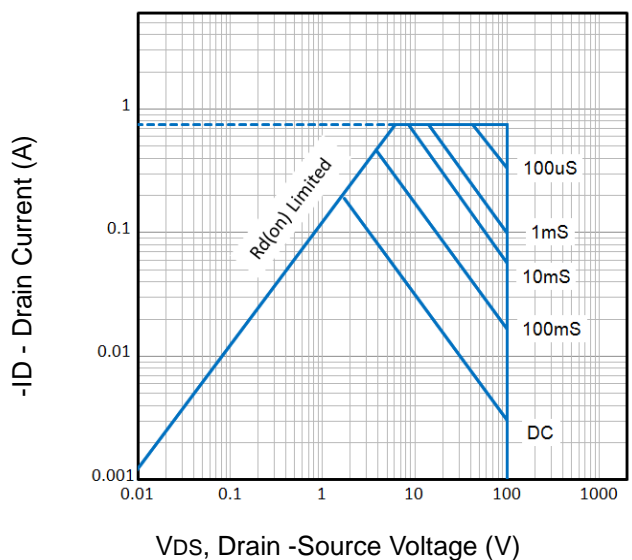


Fig6. Maximum Safe Operating Area

Typical Characteristics

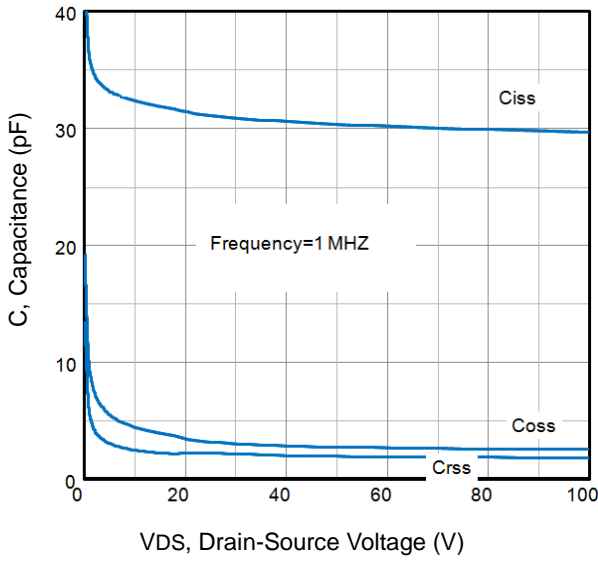


Fig7. Typical Capacitance Vs. Drain-Source Voltage

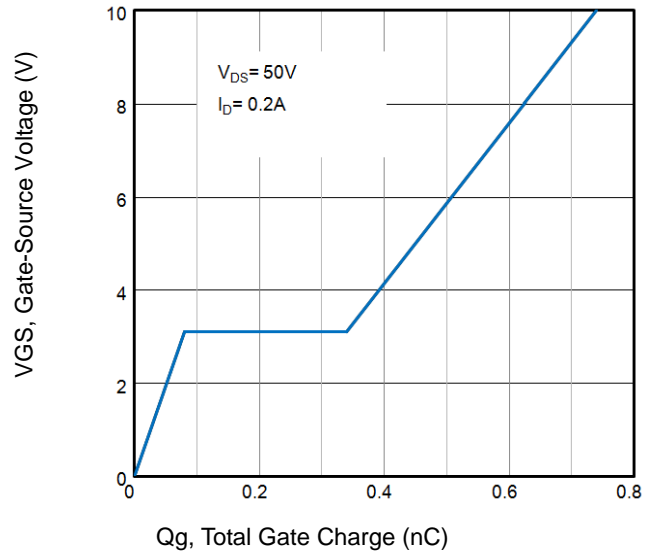


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

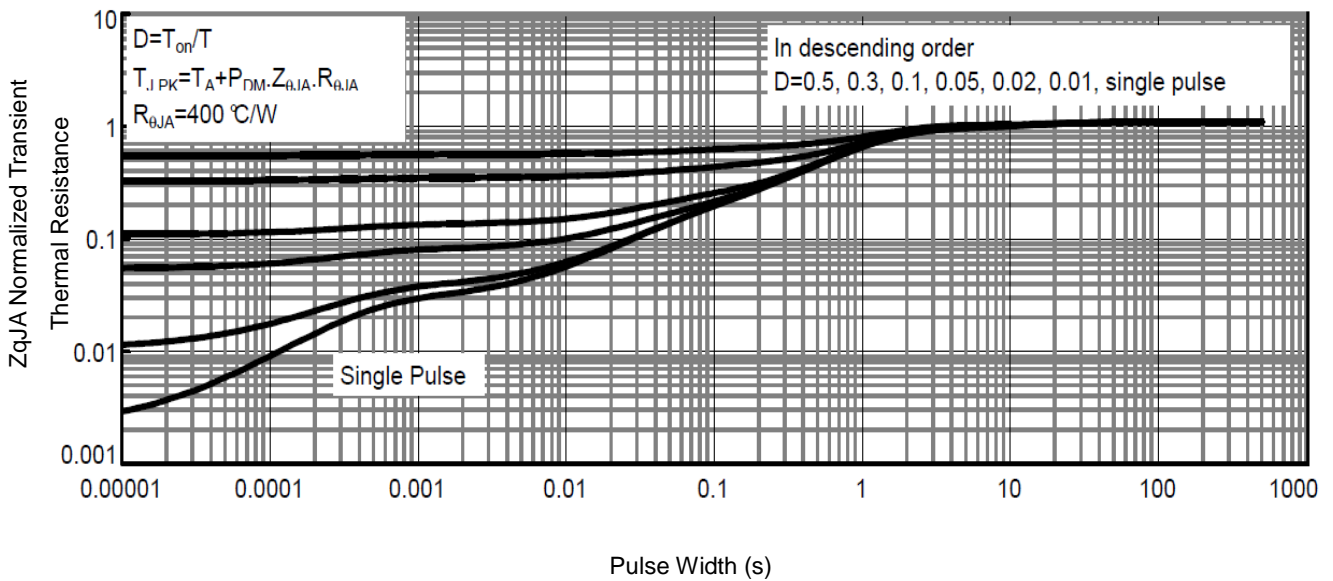


Fig9. Normalized Maximum Transient Thermal Impedance

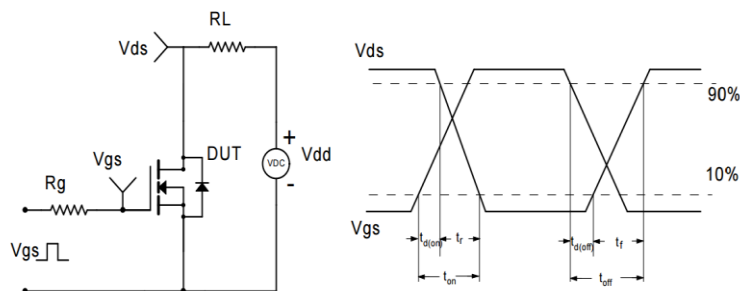
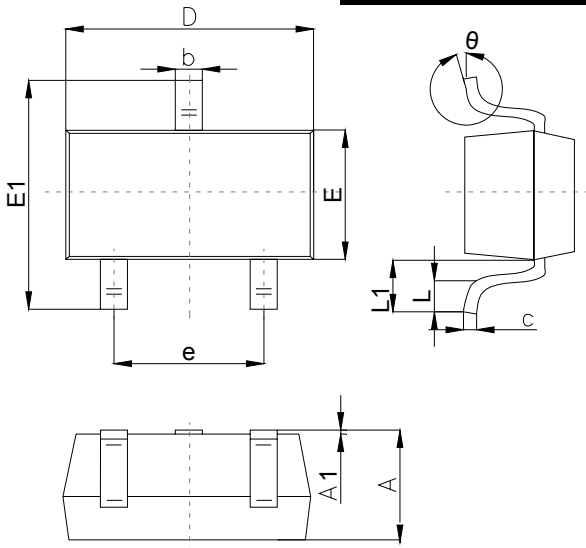


Fig10. Switching Time Test Circuit and waveforms

The curve above is for reference only.

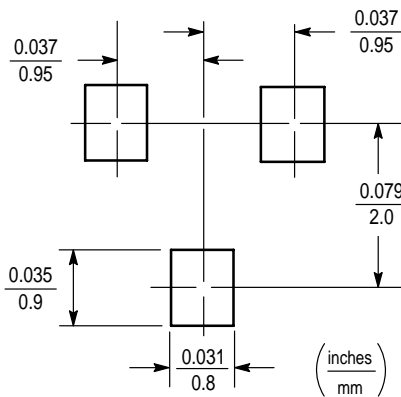
Outline Drawing

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	1.00		1.40
A1			0.10
b	0.35		0.50
c	0.10		0.20
D	2.70	2.90	3.10
E	1.40		1.60
E1	2.4		2.80
e		1.90	
L	0.10		0.30
L1	0.4		
θ	0°		10°

Suggested Pad Layout



Note:
 1. Controlling dimension: in/millimeters.
 2. General tolerance: ±0.05mm.
 3. The pad layout is for reference purposes only.

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