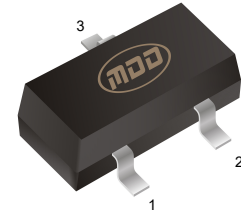


SOT-23 Plastic-Encapsulate MOSFETS

-50V P-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-50V	4.5Ω@-10V	-130mA
	5.8Ω@-5V	

SOT-23



1. Gate
2. Source
3. Drain

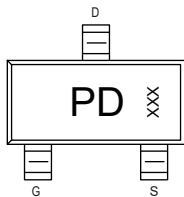
FEATURE

- Energy Efficient
- Low Threshold Voltage
- High-speed Switching
- Miniature Surface Mount Package Saves Board Space

APPLICATION

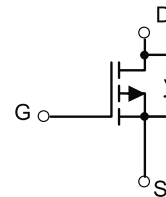
- DC-DC converters, load switching, power management in portable and battery-powered products such as computers, printers, cellular and cordless telephones.

MARKING



XXX:Date Code

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°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-50	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	-0.13	A
Pulsed Drain Current (note 1) @t _p <10 μs	I _{DM}	-0.52	A
Power Dissipation	P _D	225	mW
Thermal Resistance from Junction to Ambient (note 2)	R _{θJA}	556	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55~+150	°C
Maximum Lead Temperature for Soldering Purposes , Duration for 5 Seconds	T _L	260	°C

The above data are for reference only.



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	-50			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -50V, V _{GS} = 0V			-15	μA
		V _{DS} = -25V, V _{GS} = 0V			-0.1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±5	μA
Gate threshold voltage (note 3)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.9	-1.6	-2	V
Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} = -5V, I _D = -0.1A		5.8	10	Ω
		V _{GS} = -10V, I _D = -0.1A		4.5	8	Ω
Forward transconductance (note 1)	g _{FS}	V _{DS} = -25V; I _D = -100mA	50			mS
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C _{iss}	V _{DS} = 5V, V _{GS} = 0V, f = 1MHz		30		pF
Output capacitance	C _{oss}			10		pF
Reverse transfer capacitance	C _{rss}			5		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, R _L = 50Ω, I _D = -2.5A		2.5		ns
Turn-on rise time	t _r			1		ns
Turn-off delay time	t _{d(off)}			16		ns
Turn-off fall time	t _f			8		ns
SOURCE-DRAIN DIODE CHARACTERISTICS						
Continuous Current	I _S	I _S = -0.13A, V _{GS} = 0V			-0.13	A
Pulsed Current	I _{SM}				-0.52	A
Diode forward voltage (note 3)	V _{SD}				-2.2	V

Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t_l ≤ 10s.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production.

Typical Characteristics

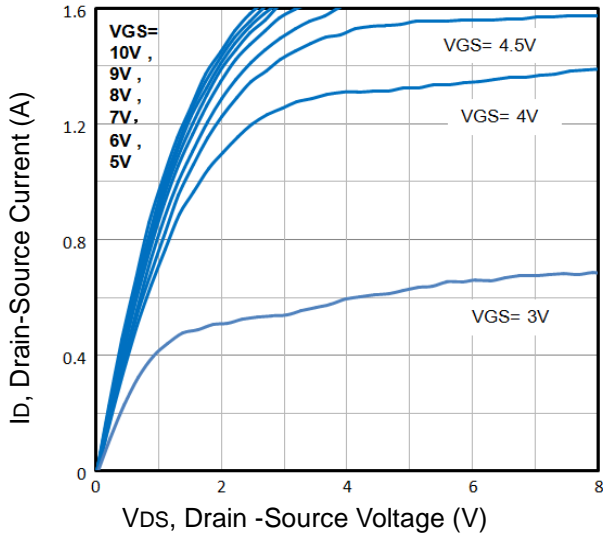


Fig1. Typical Output Characteristics

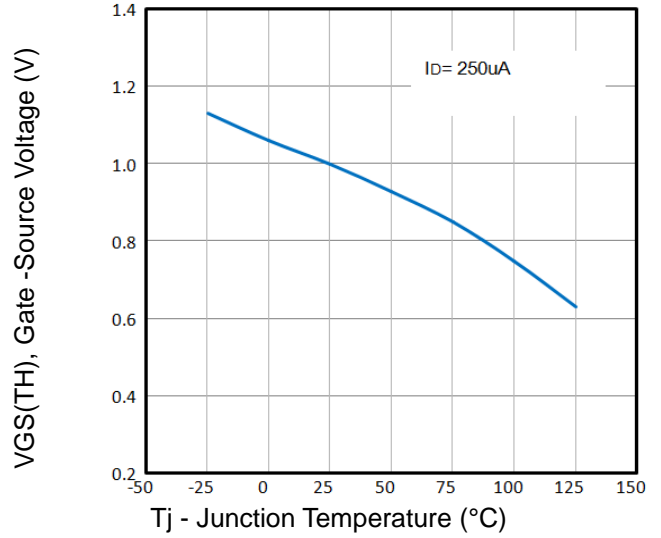


Fig2. Normalized Threshold Voltage Vs. Temperature

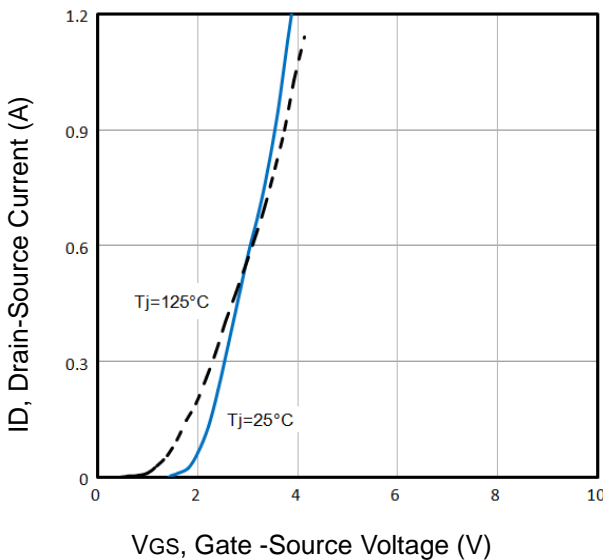


Fig3. Typical Transfer Characteristics

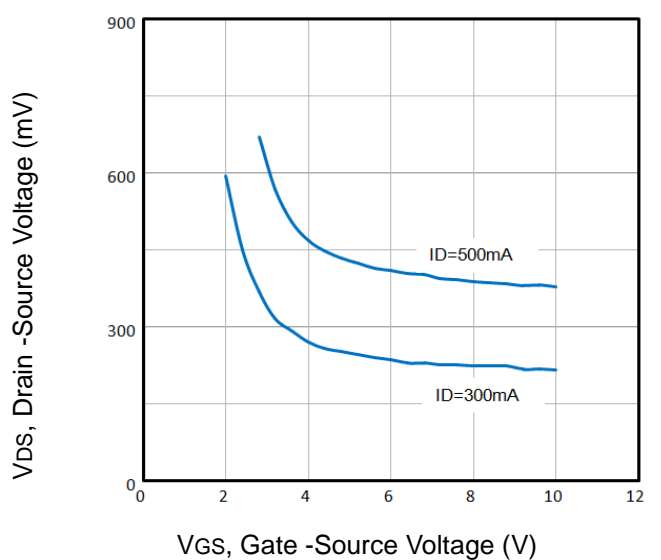


Fig4. Drain-Source Voltage vs Gate-Source Voltage

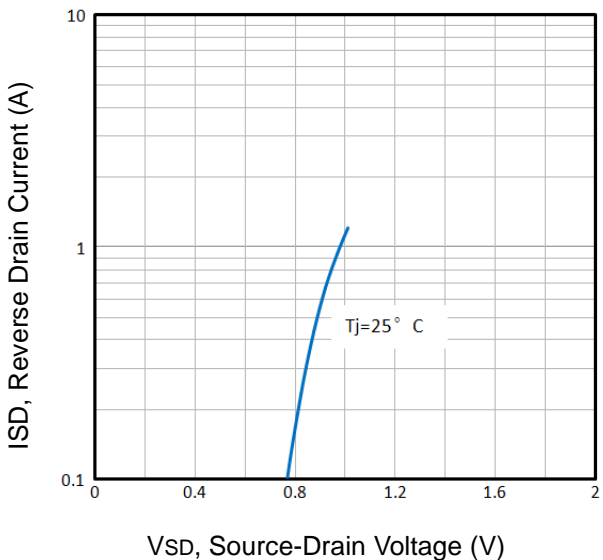


Fig5. Typical Source-Drain Diode Forward Voltage

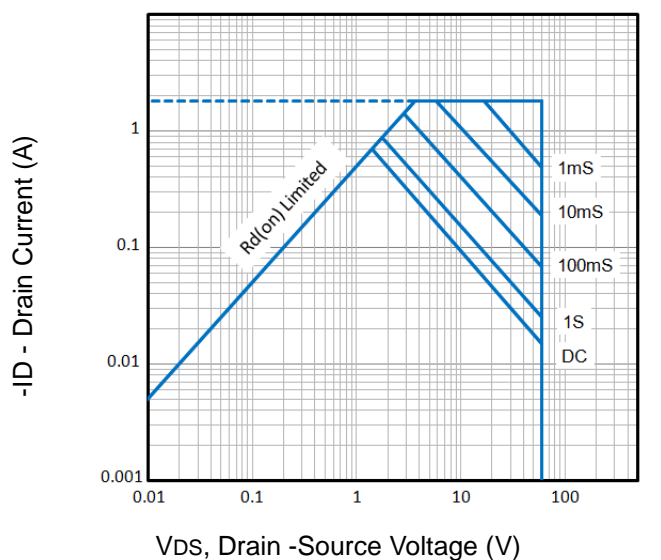


Fig6. Maximum Safe Operating Area

Typical Characteristics

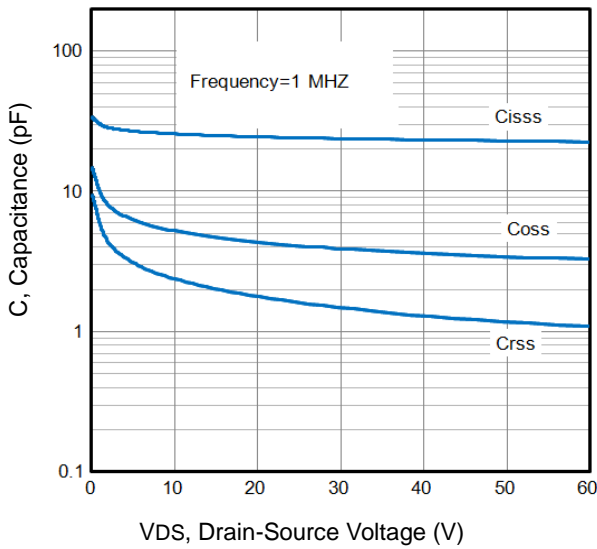


Fig7. Typical Capacitance Vs. Drain-Source Voltage

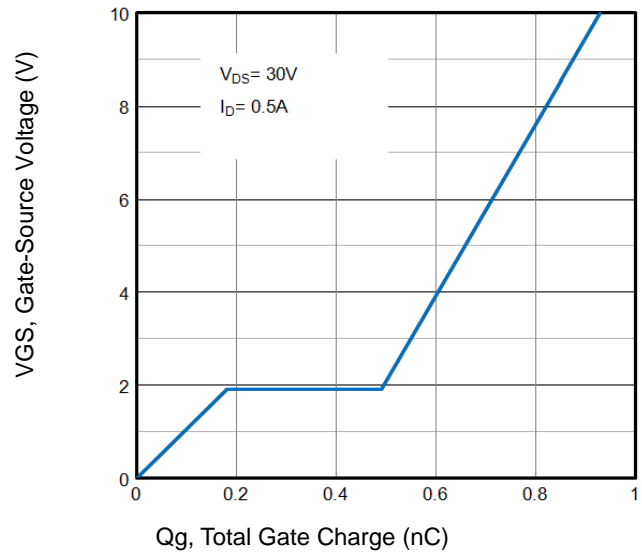


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

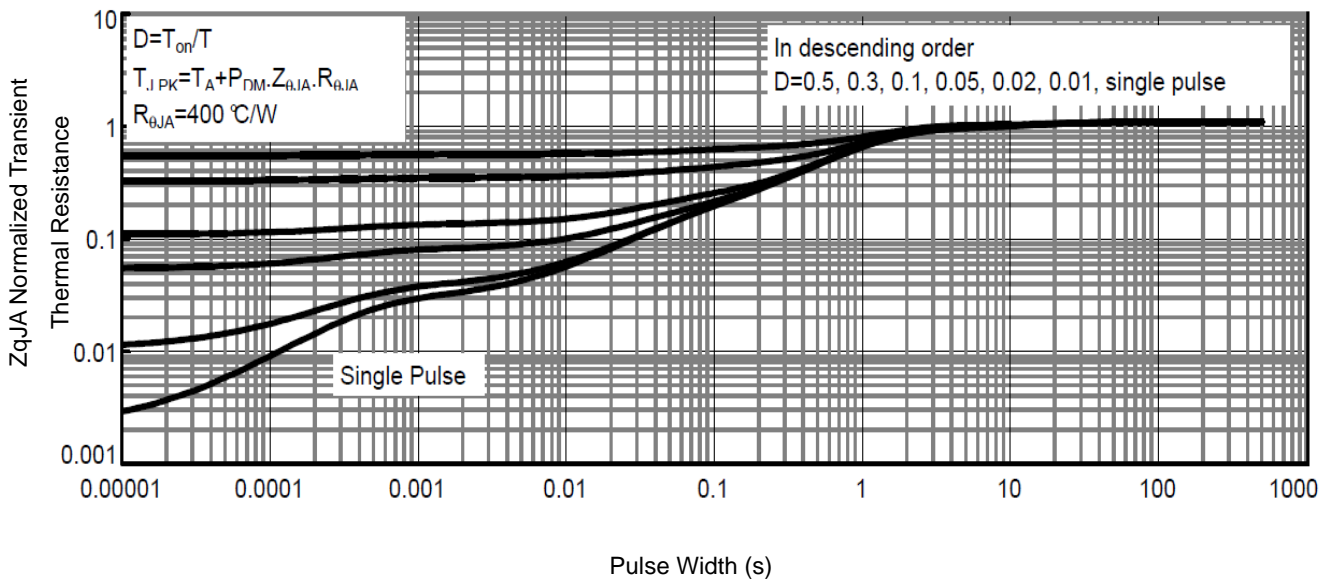


Fig9. Normalized Maximum Transient Thermal Impedance

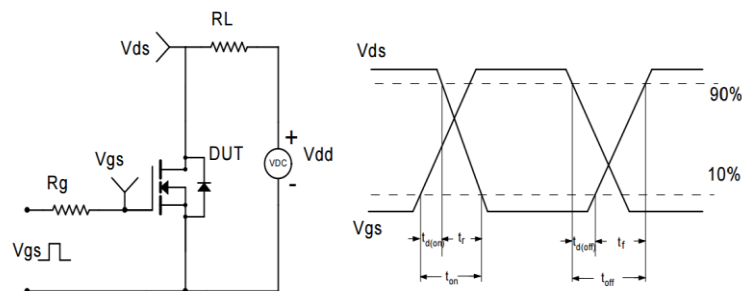
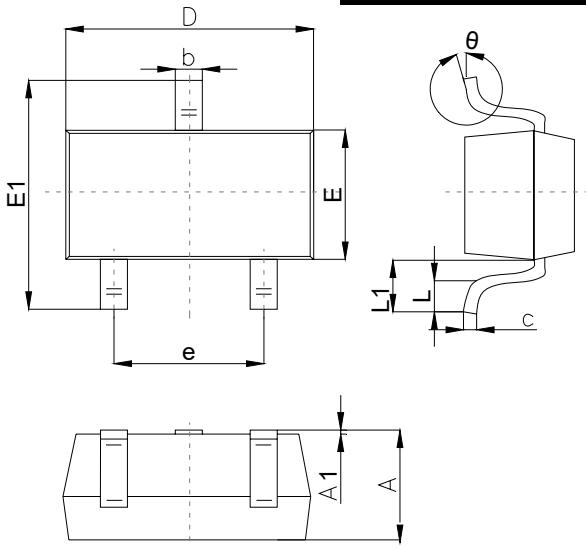


Fig10. Switching Time Test Circuit and waveforms

The curve above is for reference only.

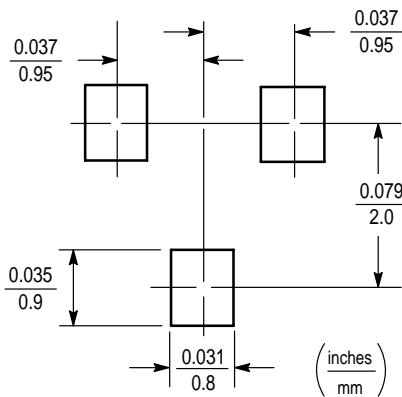
Outline Drawing

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.90		1.40
A1	0.00		0.10
b	0.30		0.50
c	0.08		0.20
D	2.80	2.90	3.10
E	1.20		1.60
E1	2.25		2.80
e	1.80	1.90	2.00
L	0.10		0.50
L1	0.4		0.55
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.