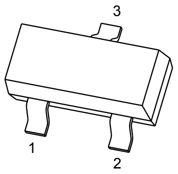
SOT-23 Plastic-Encapsulate MOSFETS

30V N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
30V	28 mΩ@10V	5A
	34 mΩ@4.5V	

SOT-23

1. GATE
2. SOURCE
3. DRAIN

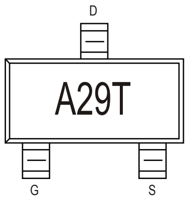


Features

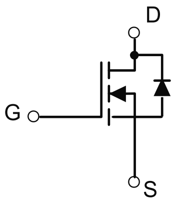
Lead free product is acquired

Surface mount package

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'	178	3000	203×203×195	45000	438×438×220	180000

Maximum Ratings and Thermal Characteristics (TA = 25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±16	
Continuous Drain Current	T_A=25℃	I_D	5.0	A
	T_A=70℃		4	
Maximum Power Dissipation [2)	T_A=25℃	P_D	1.5	W
	T_A=70℃		0.9	
Pulsed Drain Current [1)		I_{DM}	20.4	A
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-50 to 150	°C
Thermal Resistance Junction-Ambient		$R_{θJA}$	80	°C/W

Notes

1) Pulse width limited by maximum junction temperature.

2) Surface Mounted on FR4 Board, t ≤ 5 sec.

The above data are for reference only.

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

Parameter	Symbol	**Test Condition**	Min.	Typ.	Miax.	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250uA	30			V
Drain-Source On-State Resistance [1]	$R_{DS(on)}$	V_{GS} = 10V, I_D = 4.0A		28	36	mΩ
		V_{GS} = 4.5V, I_D = 3.0A		34	50	
		V_{GS} = 2.5V, I_D = 1.0A		55	80	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	0.5	0.8	1.2	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	uA
Gate Body Leakage	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			100	nA
Forward Transconductance [1]	g_{fs}	V_{DS} =15V, I_D = 4A		8	—	S
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 15V, I_D = 4A V_{GS} = 4.5V		3.1		nC
Gate-Source Charge	Q_{gs}			0.4		
Gate-Drain Charge	Q_{gd}			1.3		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 15V, R_G=3.3 Ω I_D = 1A,V_{GS} = 10V		4.4		ns
Turn-On Rise Time	t_r			2.6		
Turn-Off Delay Time	$t_{d(off)}$			25.5		
Turn-Off Fall Time	t_f			3.3		
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V f = 1.0 MHz		240		pF
Output Capacitance	C_{oss}			35		
Reverse Transfer Capacitance	C_{rss}			30		
Source drain current(Body Diode)	I_{SD}				1.8	A
Diode Forward Voltage	V_{SD}	I_S = 4.0A, V_{GS} = 0V		0.85	1.2	V

[1] Pulse test : Pulse width≤300µs, duty cycle≤2%.

Typical Characteristics

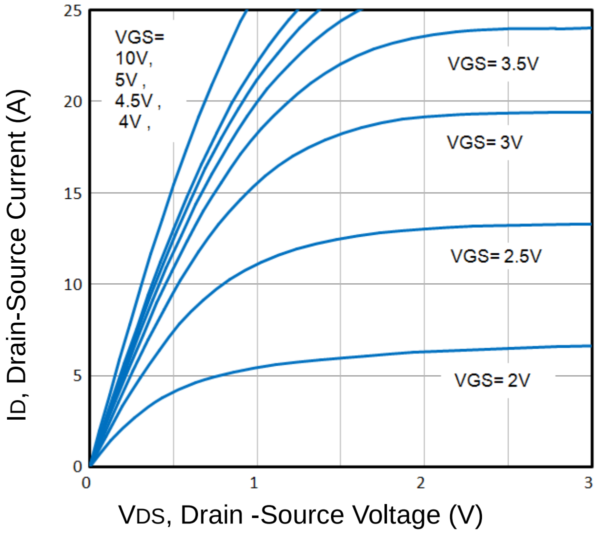


Fig1. Typical Output Characteristics

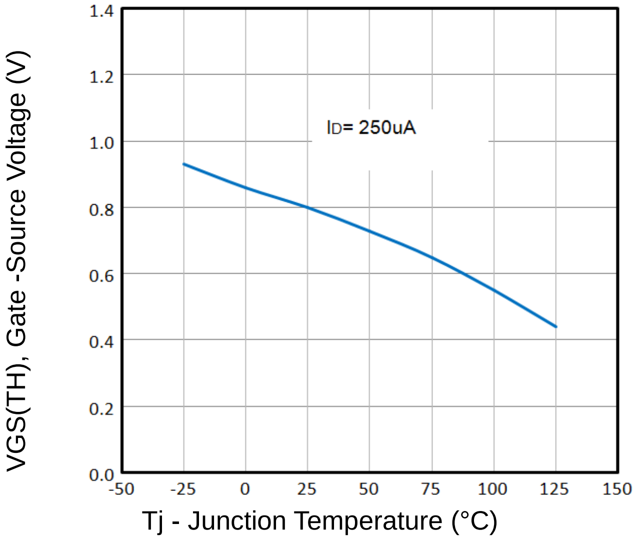


Fig2. Normalized Threshold Voltage Vs. Temperature

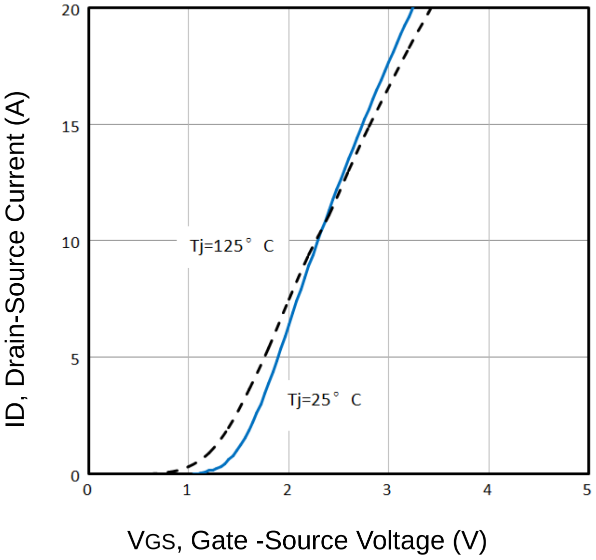


Fig3. Typical Transfer Characteristics

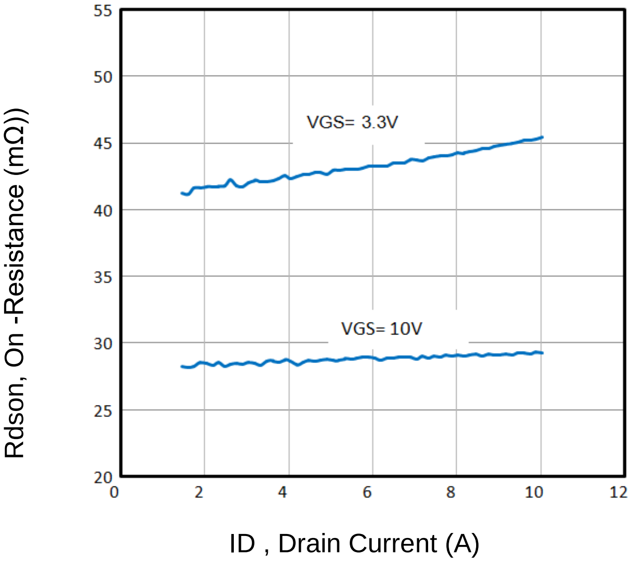


Fig4. On-Resistance vs. Drain Current and Gate

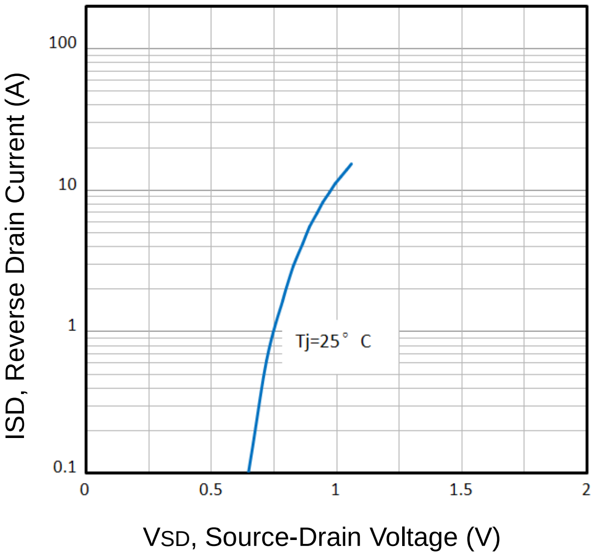


Fig5. Typical Source-Drain Diode Forward Voltage

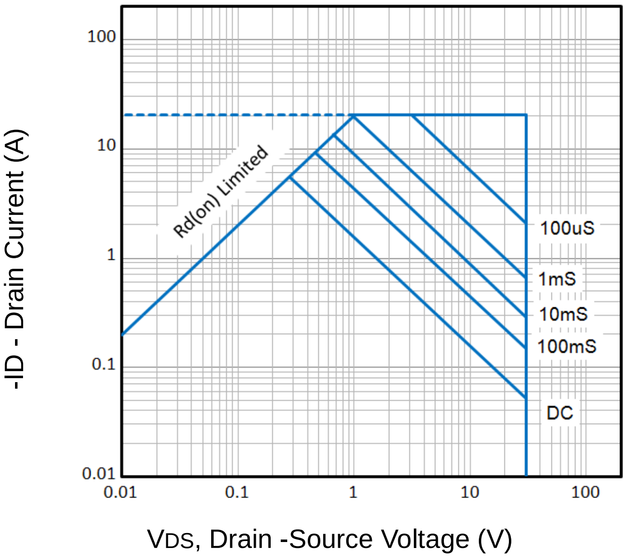


Fig6. Maximum Safe Operating Area

Typical Characteristics

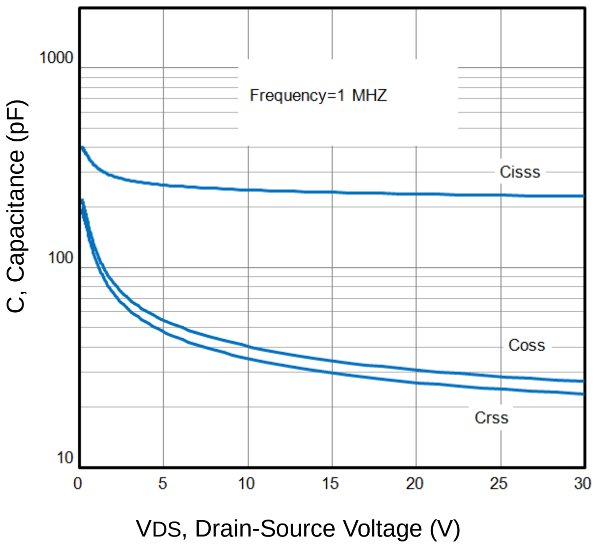


Fig7. Typical Capacitance Vs. Drain-Source Voltage

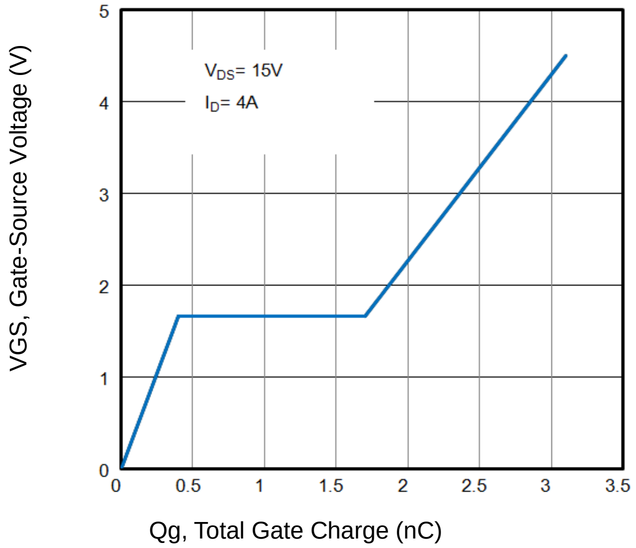


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

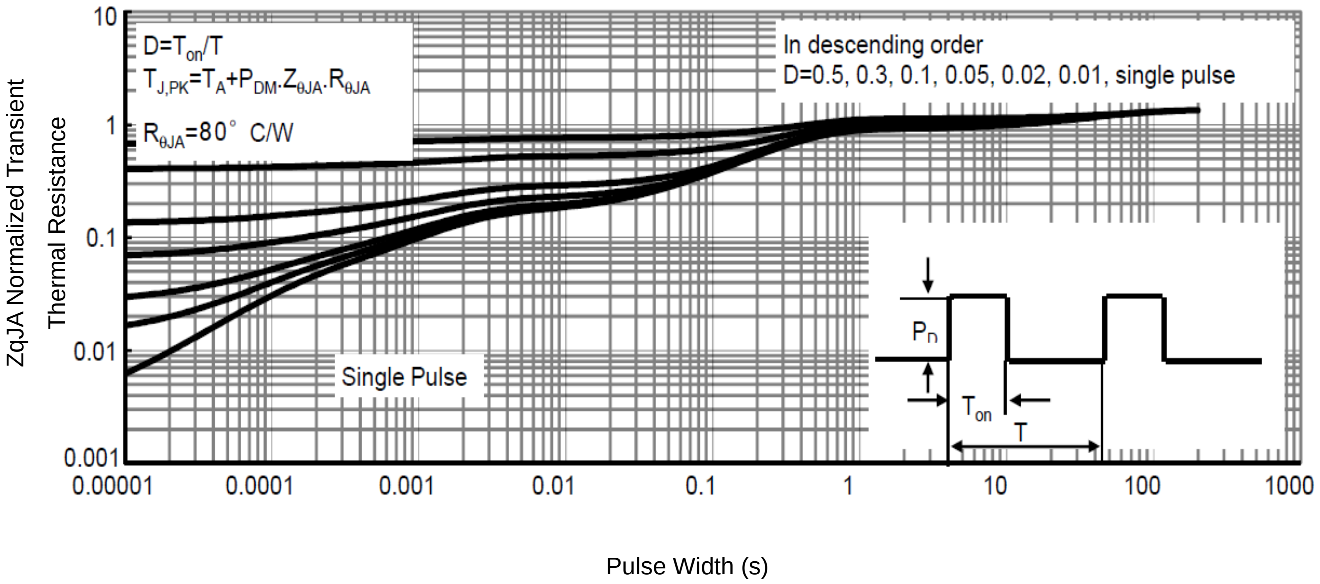


Fig9. Normalized Maximum Transient Thermal Impedance

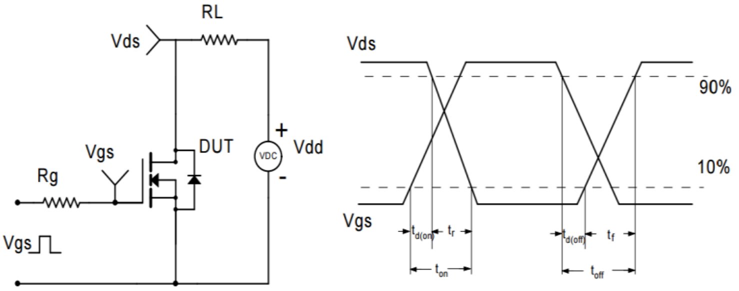
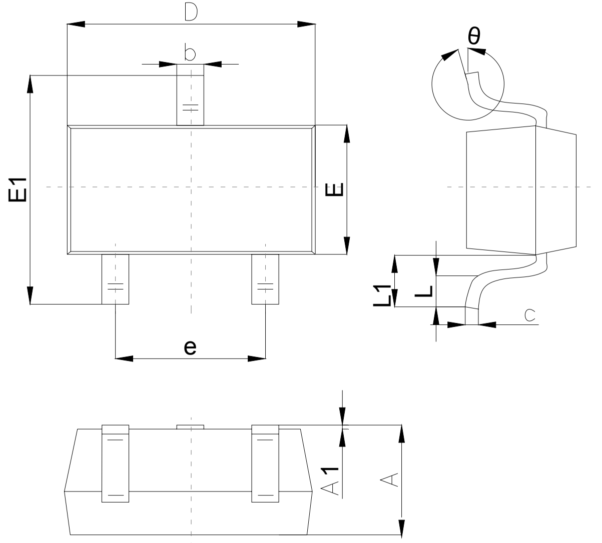


Fig10. Switching Time Test Circuit and waveforms

The curve above is for reference only.

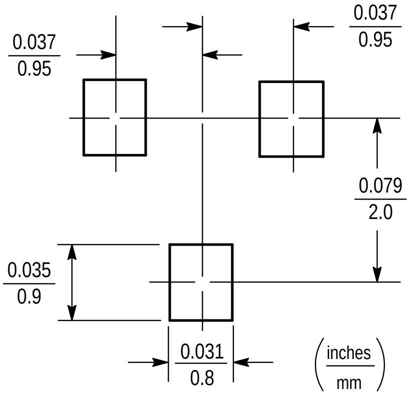
Outlitne Drawing

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.