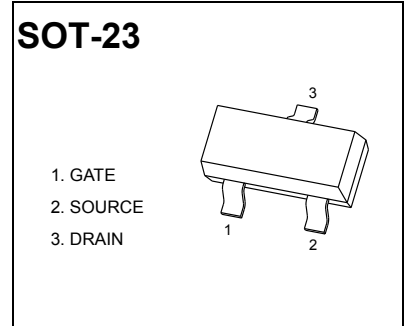
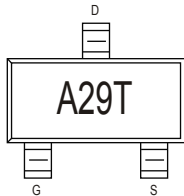
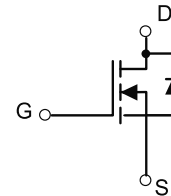


**SOT-23 Plastic-Encapsulate MOSFETS**
**30V N-Channel MOSFET**

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

**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	$I_D$	TA=25°C	5.0	A
		TA=70°C	4	
Maximum Power Dissipation <sup>2)</sup>	$P_D$	TA=25°C	1.5	W
		TA=70°C	0.9	
Pulsed Drain Current <sup>1)</sup>	$I_{DM}$	20.4	A	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-50 to 150	°C	
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	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<sub>a</sub>=25 °C unless otherwise specified**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250uA	30			V
Drain-Source On-State Resistance <sup>1)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 4.0A		28	36	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3.0A		34	50	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 1.0A		55	80	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250uA	0.5	0.8	1.2	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	uA
Gate Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			100	nA
Forward Transconductance <sup>1)</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 4A		8	—	S
<b>Dynamic</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 4A V <sub>GS</sub> = 4.5V		3.1		nC
Gate-Source Charge	Q <sub>gs</sub>			0.4		
Gate-Drain Charge	Q <sub>gd</sub>			1.3		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, R <sub>G</sub> =3.3 Ω I <sub>D</sub> = 1A, V <sub>GS</sub> = 10V		4.4		ns
Turn-On Rise Time	t <sub>r</sub>			2.6		
Turn-Off Delay Time	t <sub>d(off)</sub>			25.5		
Turn-Off Fall Time	t <sub>f</sub>			3.3		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V f = 1.0 MHz		240		pF
Output Capacitance	C <sub>oss</sub>			35		
Reverse Transfer Capacitance	C <sub>rss</sub>			30		
Source drain current(Body Diode)	I <sub>SD</sub>				1.8	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 4.0A, V <sub>GS</sub> = 0V		0.85	1.2	V

<sup>1)</sup> Pulse test : Pulse width ≤ 300μs, duty cycle ≤ 2%.

Typical Characteristics

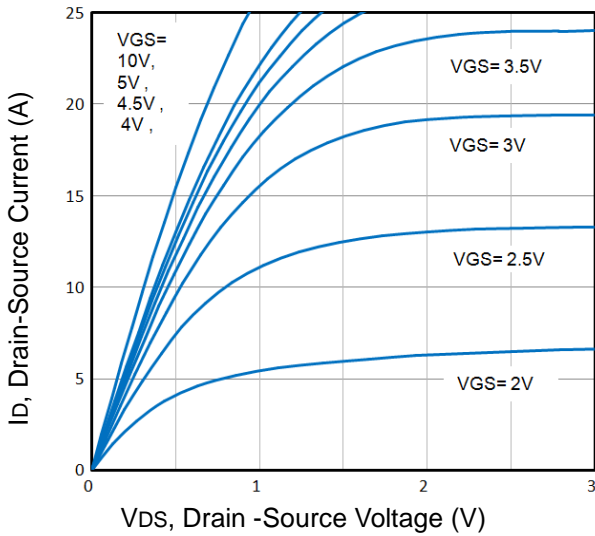


Fig1. Typical Output Characteristics

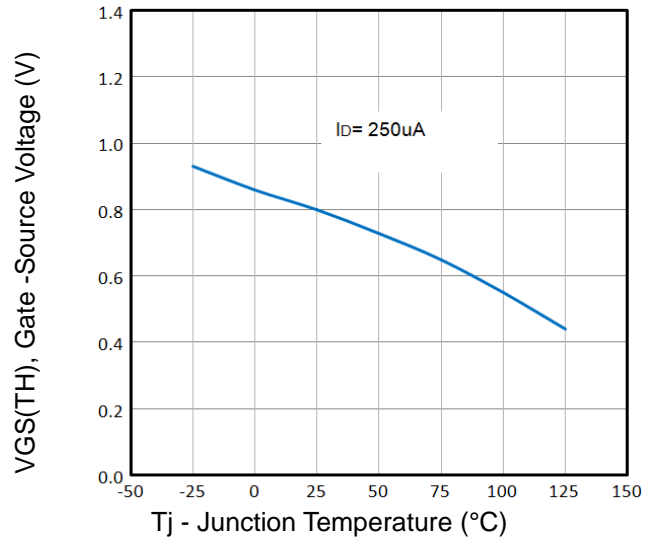


Fig2. Normalized Threshold Voltage Vs. Temperature

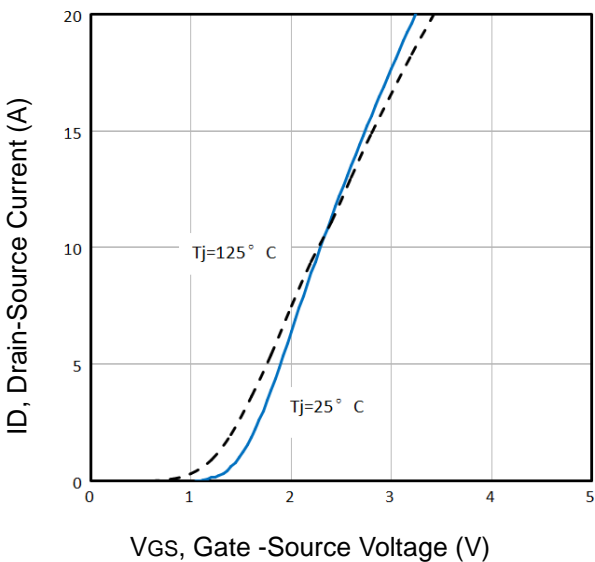


Fig3. Typical Transfer Characteristics

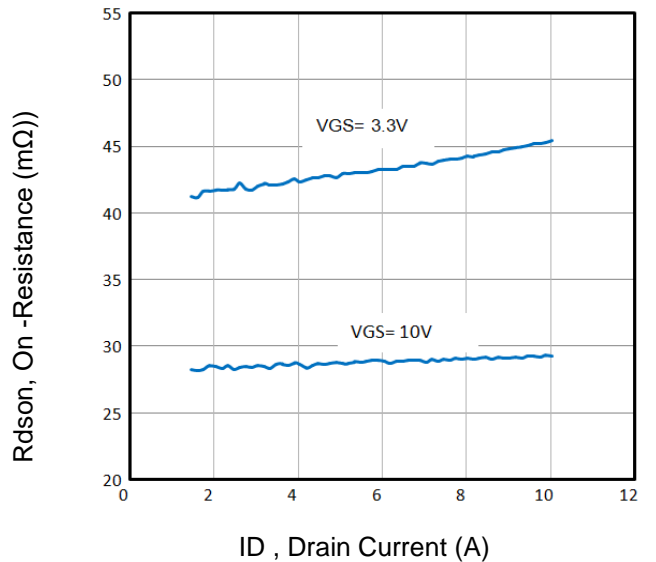


Fig4. On-Resistance vs. Drain Current and Gate

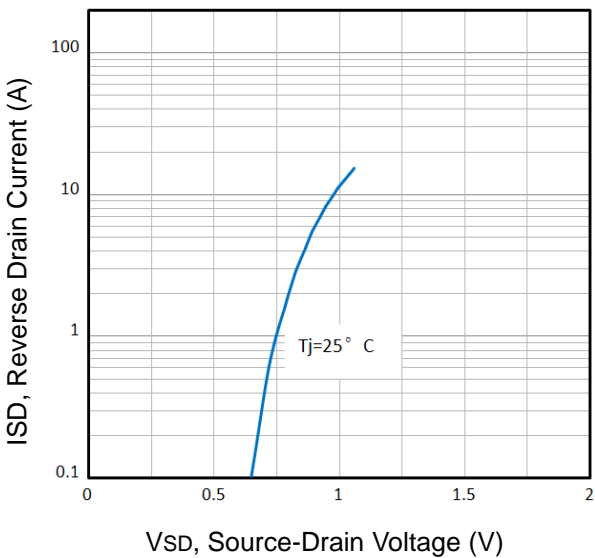


Fig5. Typical Source-Drain Diode Forward Voltage

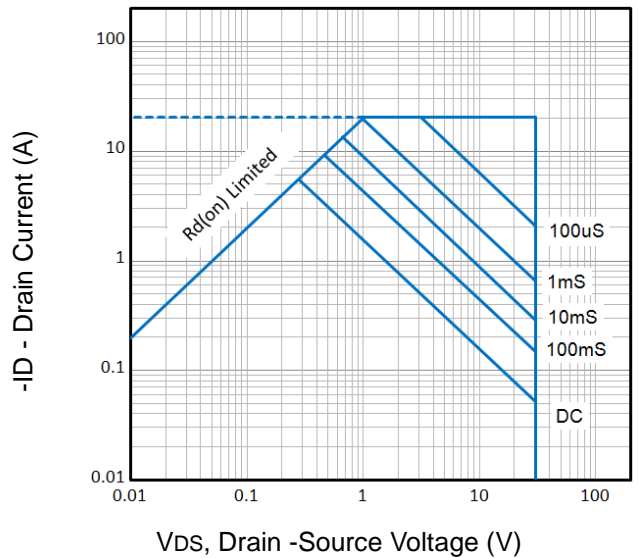


Fig6. Maximum Safe Operating Area

Typical Characteristics

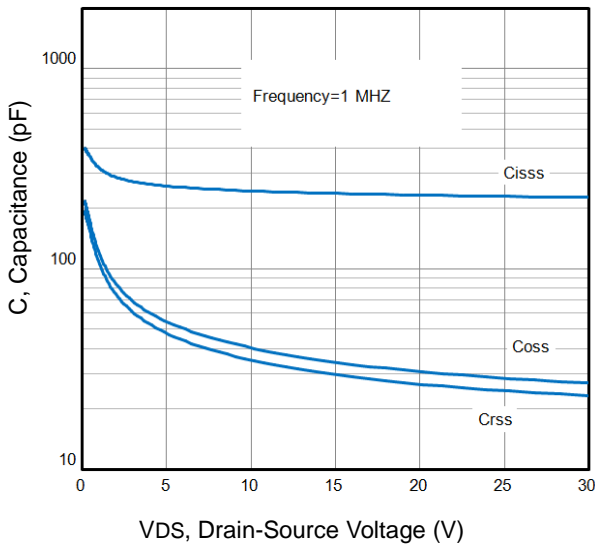


Fig7. Typical Capacitance Vs. Drain-Source Voltage

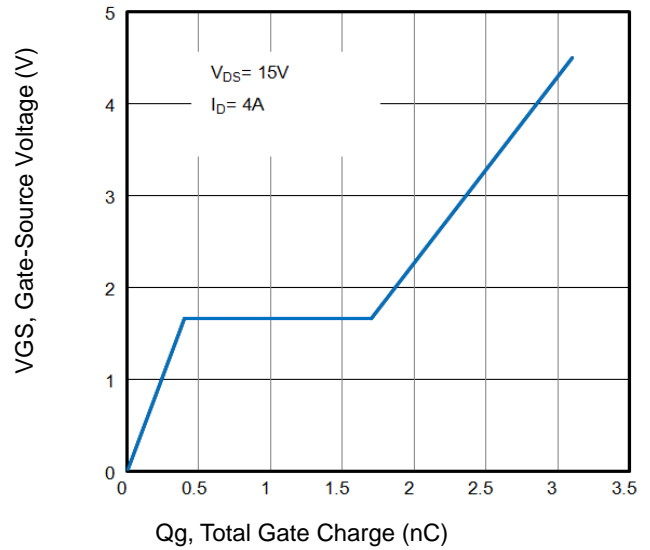


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

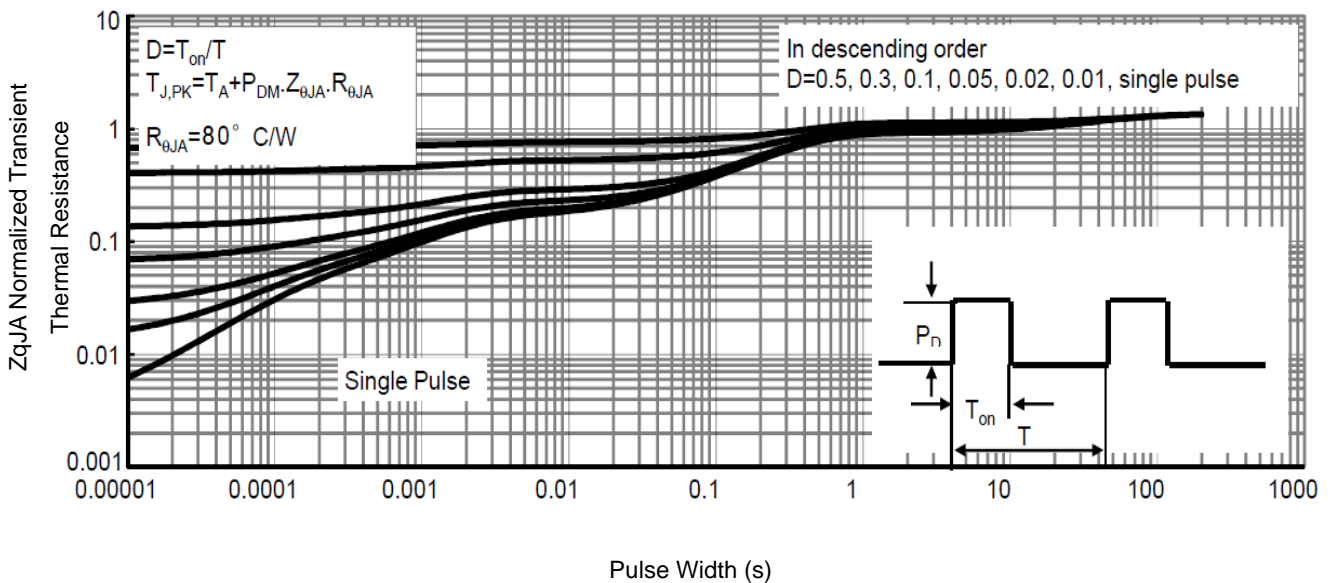


Fig9. Normalized Maximum Transient Thermal Impedance

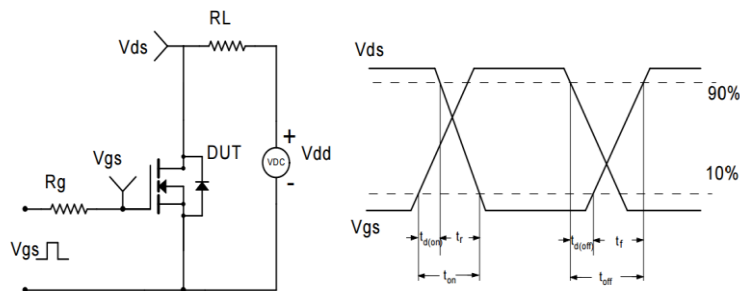
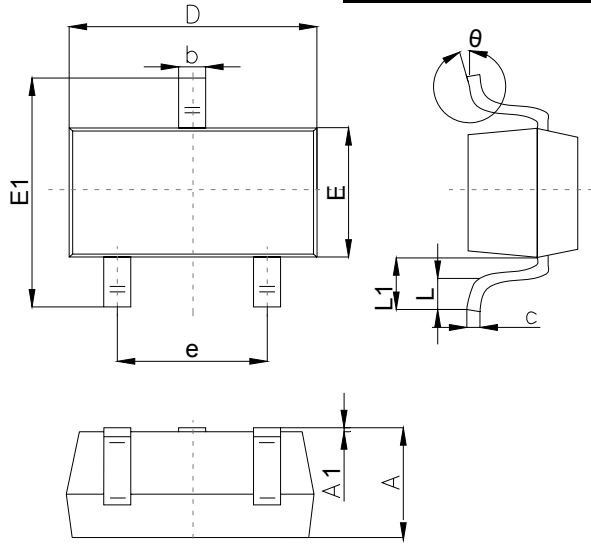


Fig10. Switching Time Test Circuit and waveforms

The curve above is for reference only.

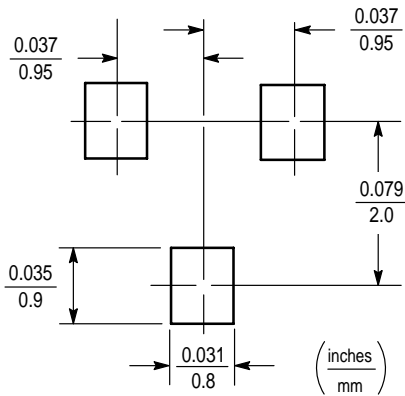
**Outlitne Drawing**

**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.