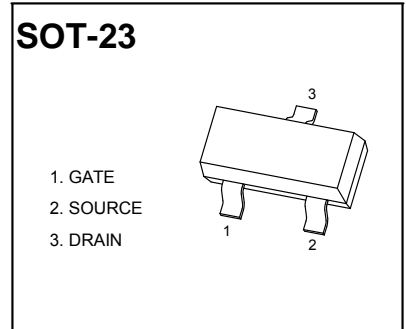
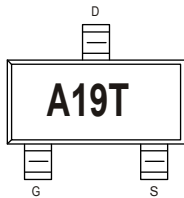


**SOT-23 Plastic-Encapsulate MOSFETS**
**30V P-Channel MOSFET**

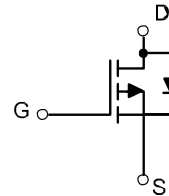
$V_{(BR)DSS}$	$R_{DS(on)Typ}$	$I_D Max$
-30V	44mΩ@-10V	-4.2A
	51mΩ@4.5V	


**FEATURE**

High dense cell design for extremely low RDS(ON)  
Exceptional on-resistance and maximum DC current capability

**MARKING**

**APPLICATION**

- Load/Power Switching
- Interfacing Switching

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

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	$V_{DS}$	-30	V	
Gate-Source Voltage	$V_{GS}$	±12		
Continuous Drain Current	$I_D$	$T_A = 25^\circ C$	-4.2	A
		$T_A = 70^\circ C$	-3.2	
Pulsed Drain Current <sup>1)</sup>	$I_{DM}$	-16	A	
Maximum Power Dissipation <sup>2)</sup>	$P_D$	$T_A = 25^\circ C$	1.2	W
		$T_A = 70^\circ C$	0.9	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-50 to 150	°C	
Junction-to-Ambient Thermal Resistance (PCB mounted) <sup>2)</sup>	$R_{thJA}$	80	°C/W	

**Notes**

- <sup>1)</sup> Pulse width limited by maximum junction temperature.  
<sup>2)</sup> Surface Mounted on FR4 Board,  $t \leq 5$  sec.

The above data are for reference only.



**MOSFET ELECTRICAL CHARACTERISTICS**

$T_a=25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Off Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR) DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$			-1	$\mu A$
Gate-source leakage current	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$			$\pm 100$	nA
<b>On characteristics</b>						
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.2A$		44	55	m
		$V_{GS} = -4.5V, I_D = -3A$		50	60	m
		$V_{GS} = -3.3V, I_D = -3A$		58	75	m
Forward transconductance (note 3)	$g_{FS}$	$V_{DS} = -5V, I_D = -5A$	7			S
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.5	-0.8	-1.2	V
<b>Dynamic Characteristics (note 4)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		655		pF
Output capacitance	$C_{oss}$			65		pF
Reverse transfer capacitance	$C_{rss}$			53		pF
<b>Switching Characteristics (note 4)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -10V, V_{DS} = -15V,$ $R_L = 3.3\ \Omega, R_{GEN} = 6\ \Omega$		7		ns
Turn-on rise time	$t_r$			3.8		ns
Turn-off delay time	$t_{d(off)}$			35		ns
Turn-off fall time	$t_f$			10.5		ns
<b>Drain-source diode characteristics and maximum ratings</b>						
Diode forward voltage (note 3)	$V_{SD}$	$I_S = 1A, V_{GS} = 0V$			-1	V

**Note :**

- 3). Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$
- 4). Guaranteed by design, not subject to production testing

Typical Characteristics

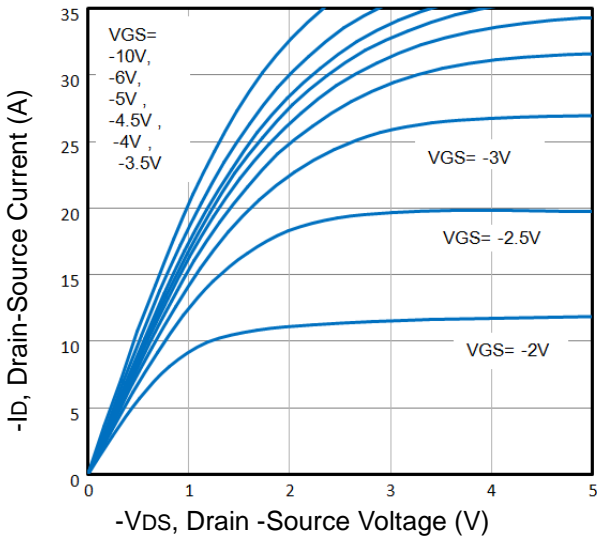


Fig1. Typical Output Characteristics

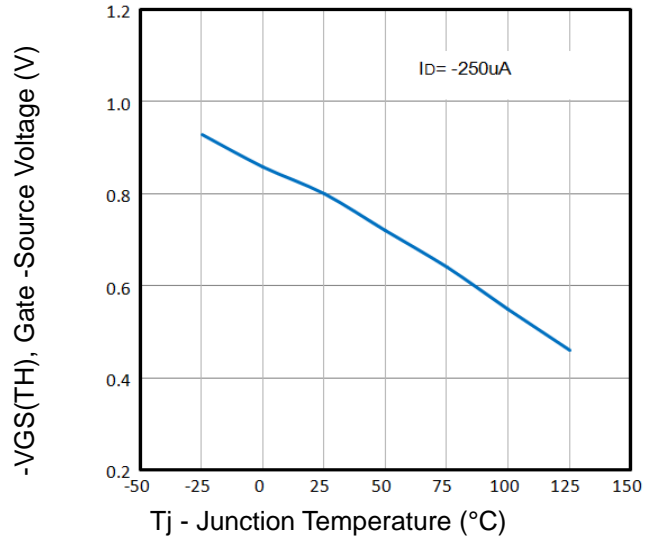


Fig2. Normalized Threshold Voltage Vs. Temperature

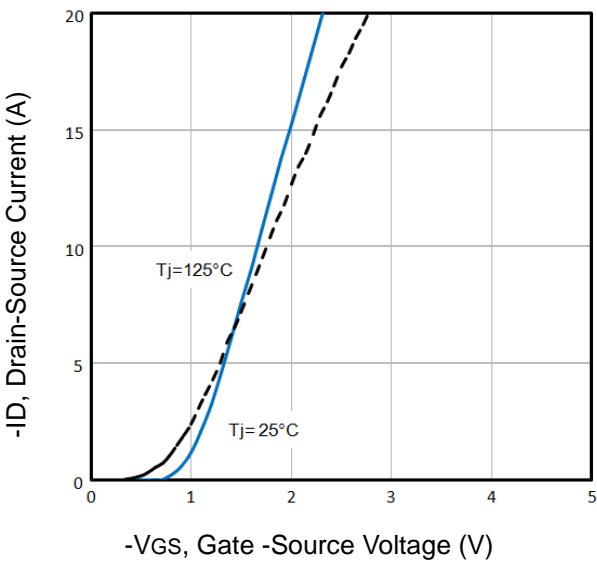


Fig3. Typical Transfer Characteristics

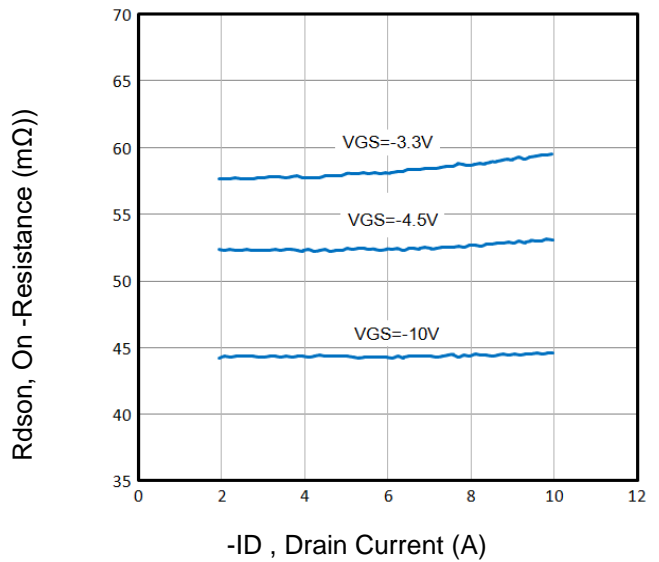


Fig4. On-Resistance vs. Drain Current and Gate

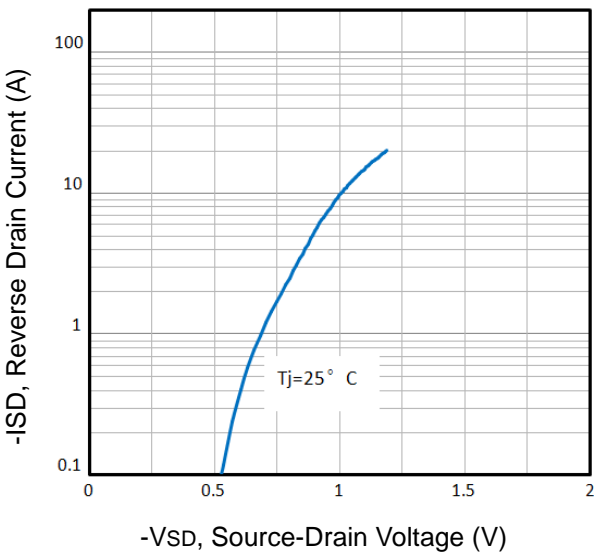


Fig5. Typical Source-Drain Diode Forward Voltage

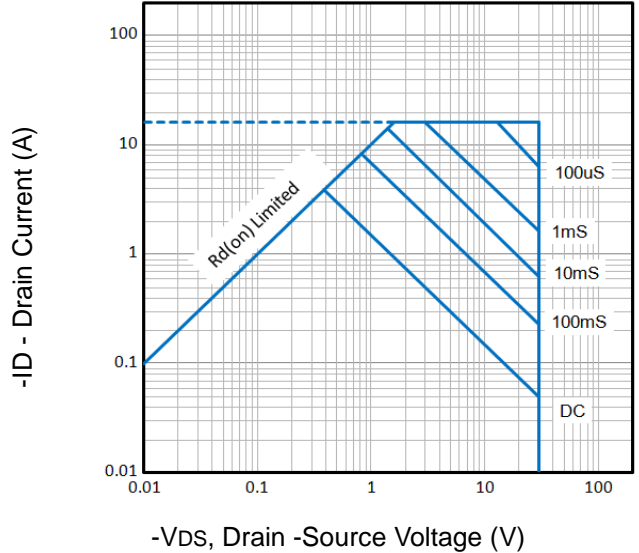


Fig6. Maximum Safe Operating Area

Typical Characteristics

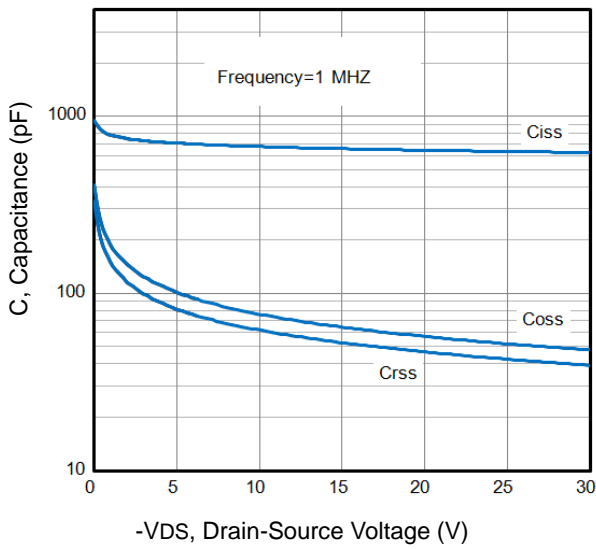


Fig7. Typical Capacitance Vs. Drain-Source Voltage

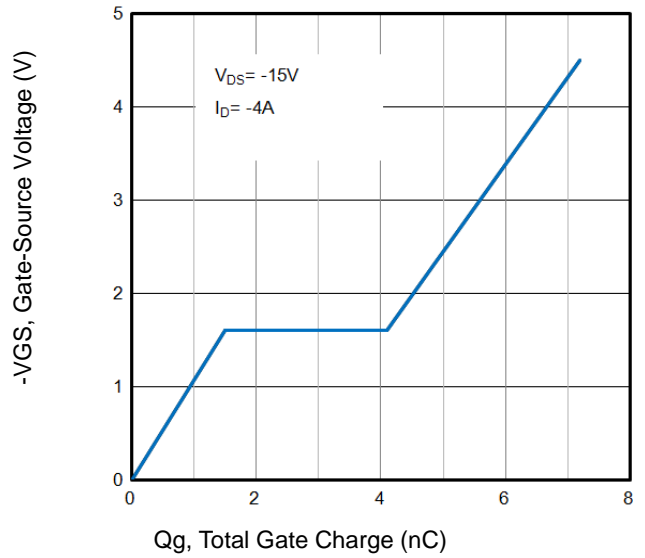


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

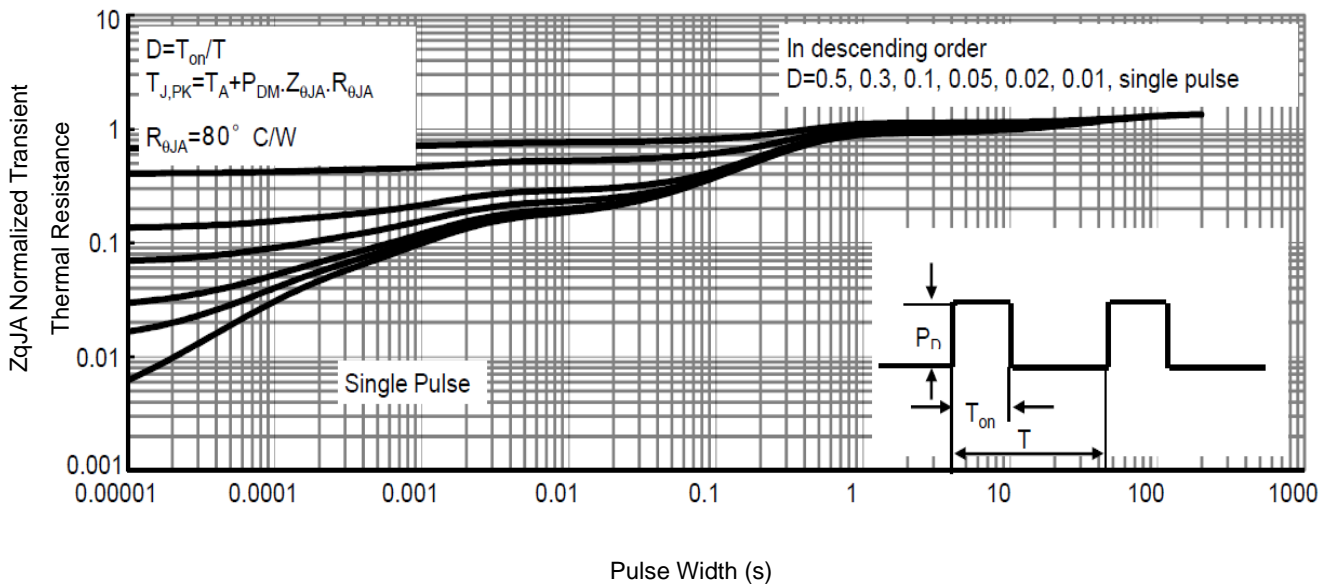


Fig9. Normalized Maximum Transient Thermal Impedance

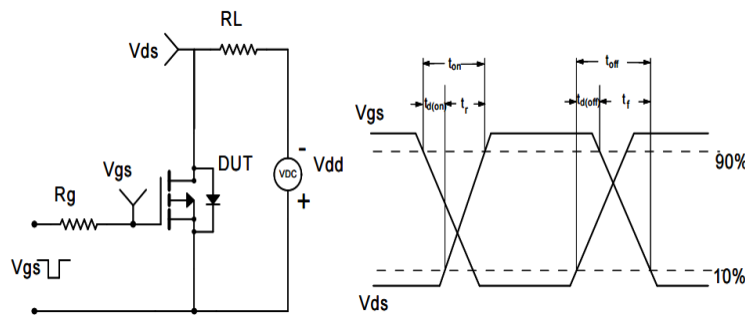
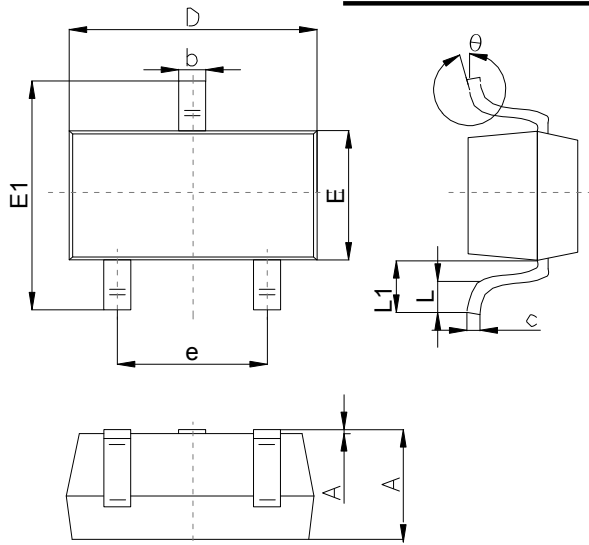
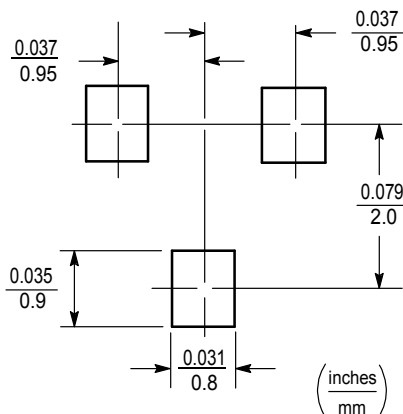


Fig10. Switching Time Test Circuit and waveforms

**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:  $\pm 0.05\text{mm}$ .
- 3.The pad layout is for reference purposes only.

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