

SOT-23 Plastic-Encapsulate MOSFETS

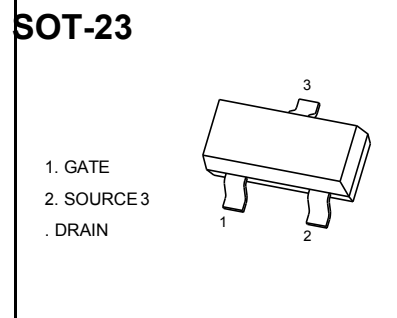
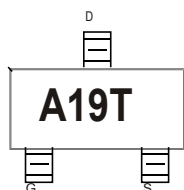
30V P-Channel MOSFET

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

Features

High dense cell design for extremely low $R_{DS(ON)}$
Exceptional on-resistance and maximum DC current capability

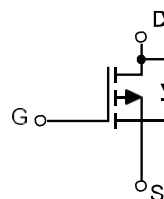
MARKING



Applications

- 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	$T_A = 25^\circ\text{C}$ -4.2	A
		$T_A = 70^\circ\text{C}$ -3.2	
Pulsed Drain Current ¹⁾	I_{DM}	-16	A
Maximum Power Dissipation ²⁾	P_D	$T_A = 25^\circ\text{C}$ 1.2	W
		$T_A = 70^\circ\text{C}$ 0.9	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-50 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted) ²⁾	R_{thJA}	80	°C/W

Notes

¹⁾ Pulse width limited by maximum junction temperature.

²⁾ Surface Mounted on FR4 Board, $t \leq 5$ sec.

The above data are for reference only.

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =-250uA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-30V, V _{GS} = 0V			-1	uA
Gate-source leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V			±100	nA
On characteristics						
Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} =-10V, I _D =-4.2A		44	55	m Ω
		V _{GS} =-4.5V, I _D =-3A		50	60	m Ω
		V _{GS} =-3.3V, I _D =-3A		58	75	m Ω
Forward tranconductance (note 3)	g _{FS}	V _{DS} =-5V, I _D =-5A	7			S
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-0.5	-0.8	-1.2	V
Dynamic Characteristics (note 4)						
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
Switching Characteristics (note 4)						
Turn-on delay time	t _{d(on)}	V _{GS} =-10V, V _{DS} =-15V, R _L =3.3 Ω ,R _{GEN} =6 Ω		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
Drain-source diode characteristics and maximum ratings						
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

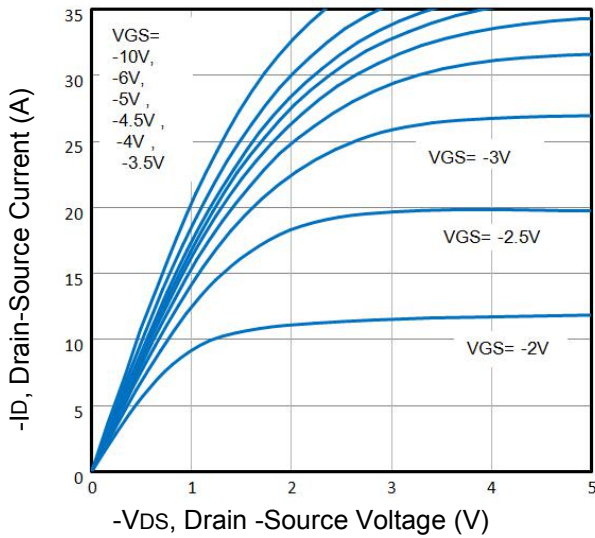


Fig1. Typical Output Characteristics

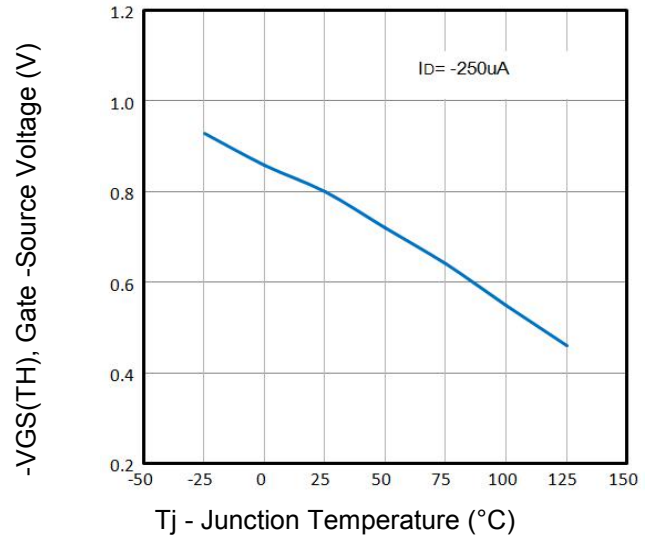


Fig2. Normalized Threshold Voltage Vs. Temperature

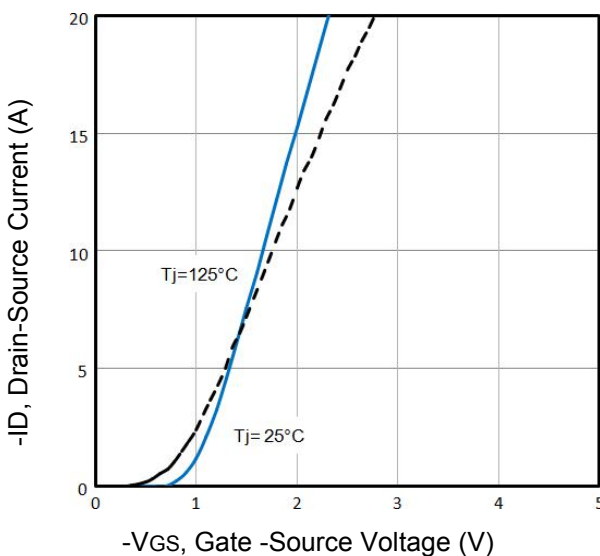


Fig3. Typical Transfer Characteristics

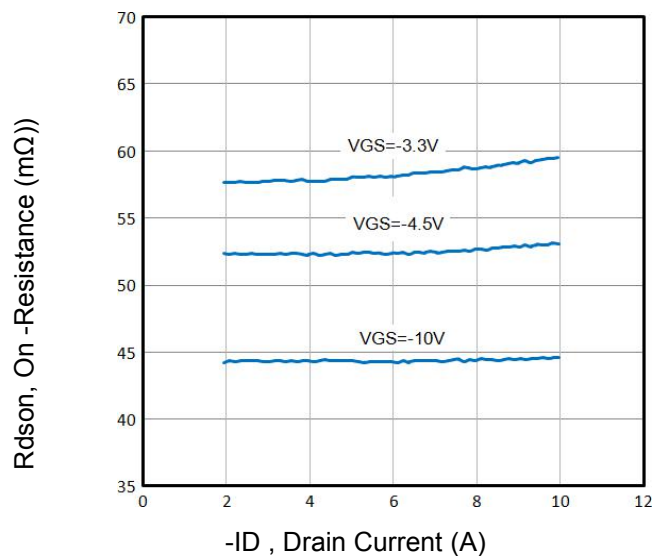


Fig4. On-Resistance vs. Drain Current and Gate

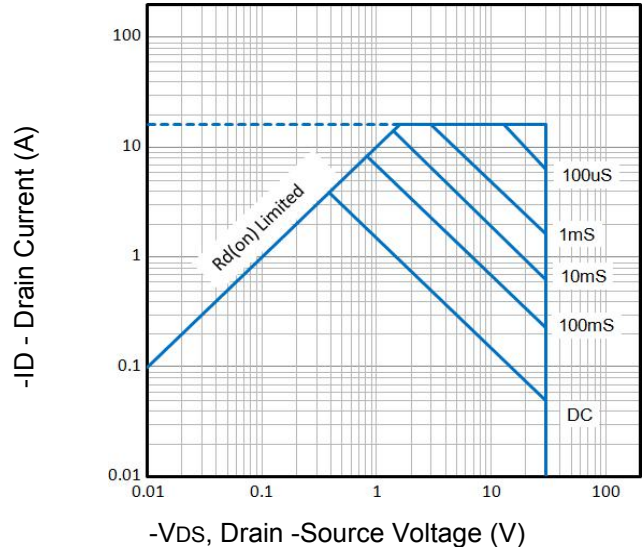
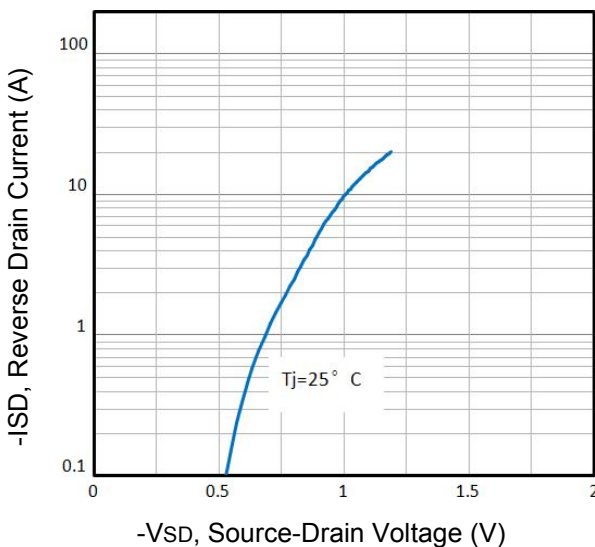


Fig6. Maximum Safe Operating Area

Typical Characteristics

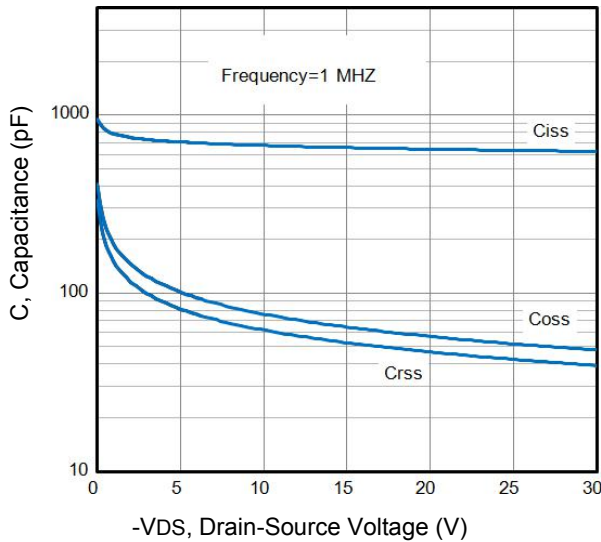


Fig7. Typical Capacitance Vs. Drain-Source Voltage

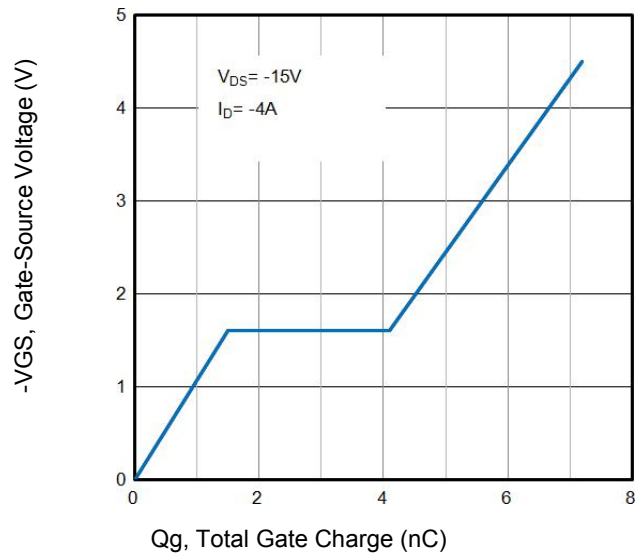


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

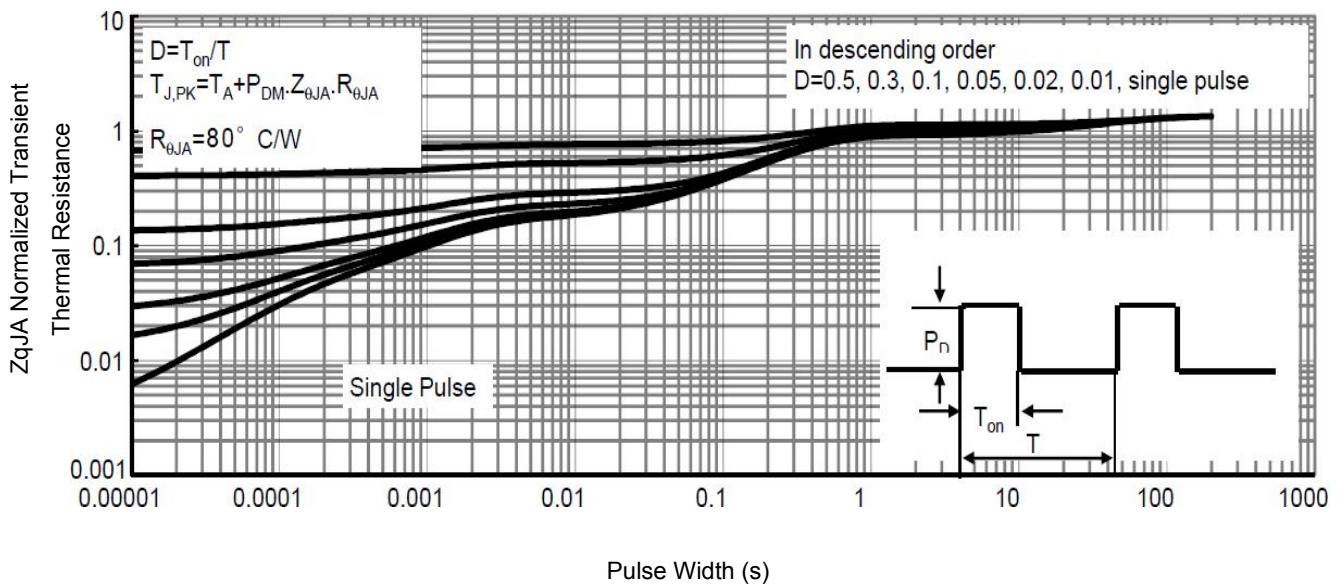


Fig9. Normalized Maximum Transient Thermal Impedance

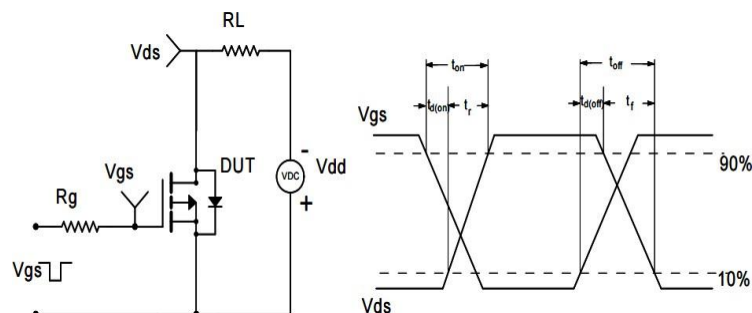
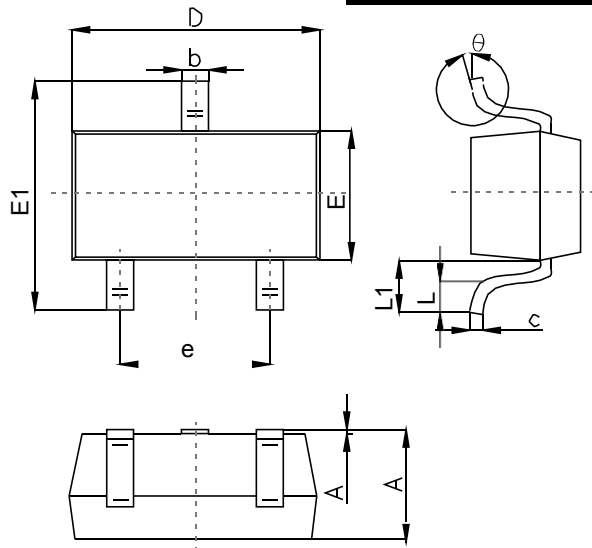


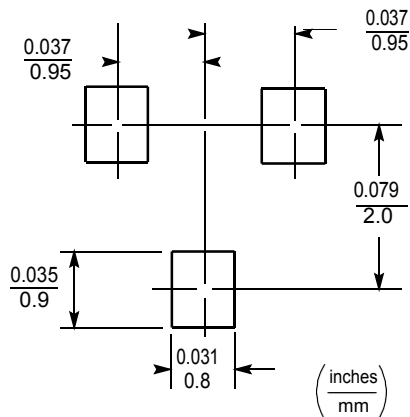
Fig10. Switching Time Test Circuit and waveforms

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.