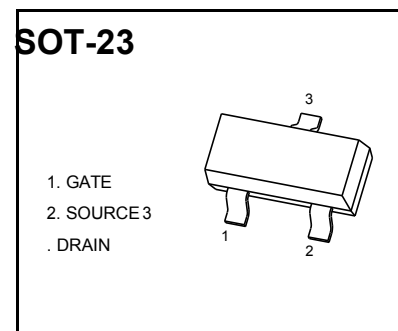


SOT-23 Plastic-Encapsulate MOSFETS

20V P-Channel MOSFET

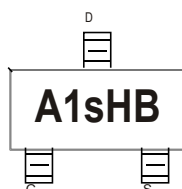
$V_{(BR)DSS}$	$R_{DS(on)Typ}$	$I_D Max$
-20V	70mΩ@4.5V	-3.0A
	78mΩ@3.3V	



Features

Trench FET Power MOSFET

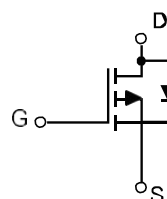
MARKING



APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

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}	-20	V
Gate-Source Voltage	V_{GS}	±10	
Continuous Drain Current	I_D	$T_A = 25^\circ C$ -3.0	A
		$T_A = 70^\circ C$ -2.5	
Pulsed Drain Current ¹⁾	I_{DM}	-12	A
Maximum Power Dissipation ²⁾	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) ²⁾	R_{thJA}	100	°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 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	-20			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.6	-1	
Gate-source leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±10V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3A		70	90	mΩ
		V _{GS} =-3.3V, I _D =-2.0A		78	100	
Forward transconductance ^a	g _{fs}	V _{DS} =-5V, I _D =-2.8A		4.0		S
Dynamic ^b						
Input capacitance	C _{iSS}	V _{DS} =-10V, V _{GS} =0V, f =1MHz		330		pF
Output capacitance	C _{oSS}			50		
Reverse transfer capacitance	C _{rSS}			45		
Total gate charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-3A		6.6		nC
		V _{DS} =-10V, V _{GS} =-4.5V, I _D =-3A		0.8		
Q _{gs}			0.7			
Q _{gd}			1.4			
Turn-on delay time	t _{d(on)}	V _{DD} =-10V, R _L =10Ω, I _D =-3A, V _{GEN} =-4.5V, R _g =3.3Ω		11		ns
Rise time	t _r			12		
Turn-off delay time	t _{d(off)}			18		
Fall time	t _f			30		
Drain-source body diode characteristics						
Continuous source-drain diode current	I _S	T _C =25°C			-1.5	A
Body diode voltage	V _{SD}	I _S =-2A		-0.85	-1.2	V

^{a)} Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%

Guaranteed by design, not subject to production testing

Typical Characteristics

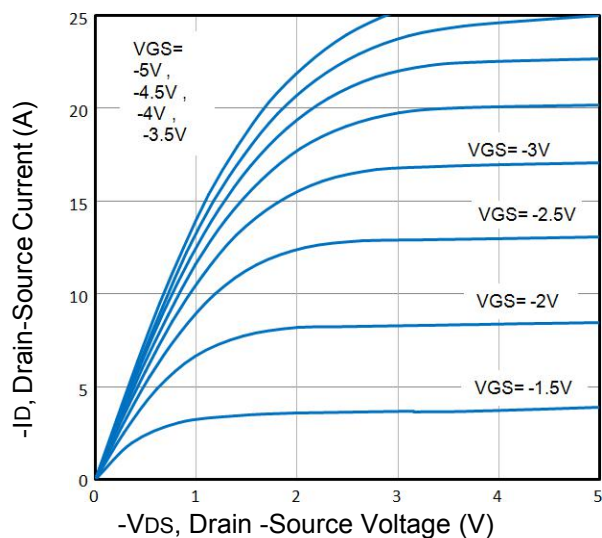


Fig1. Typical Output Characteristics

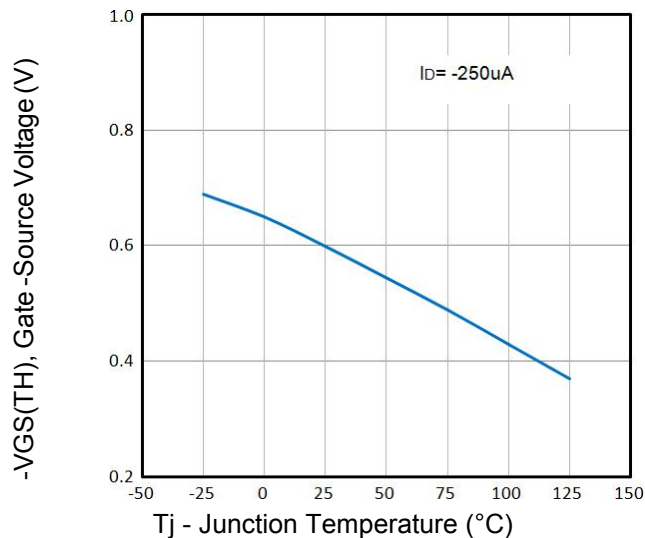


Fig2. Normalized Threshold Voltage Vs. Temperature

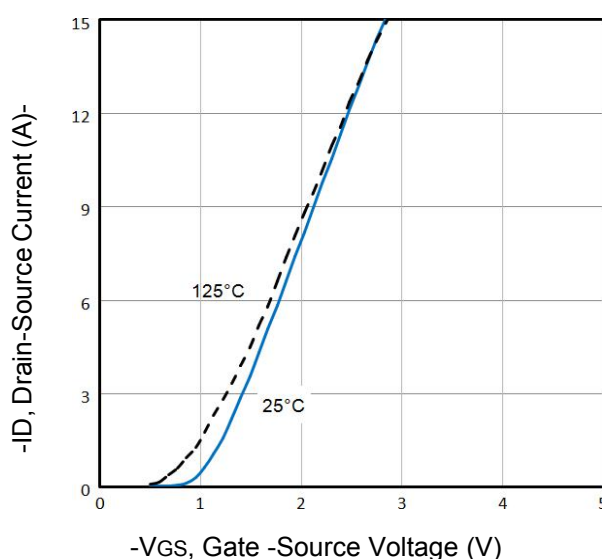


Fig3. Typical Transfer Characteristics

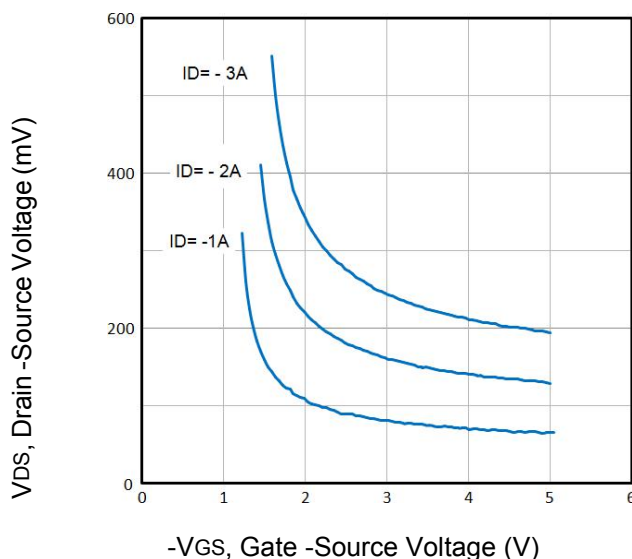
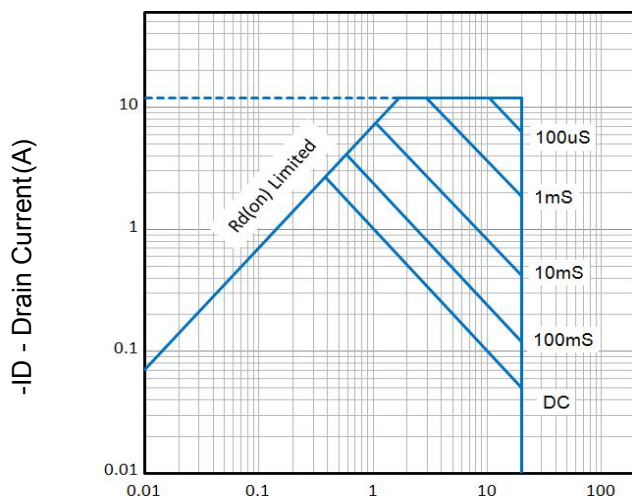
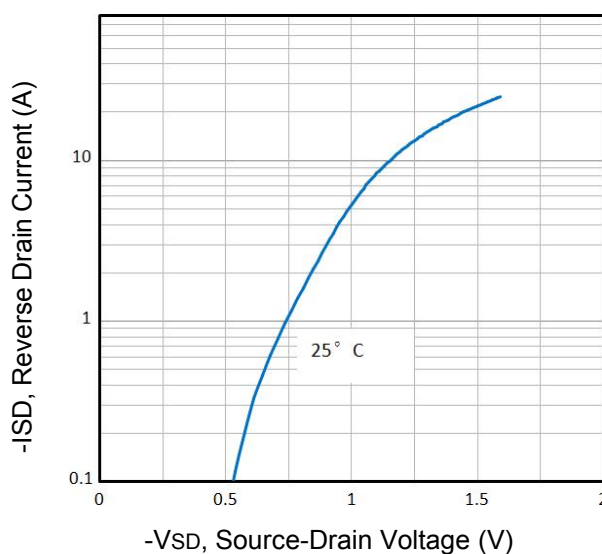


Fig4. Drain-Source Voltage vs Gate-Source Voltage



Typical Characteristics

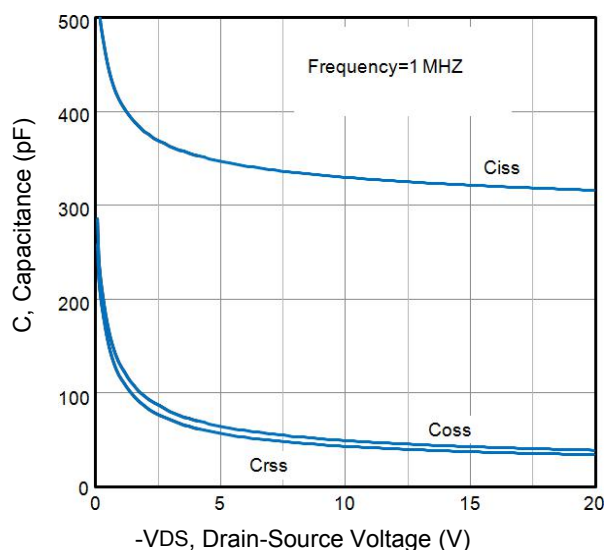


Fig7. Typical Capacitance Vs. Drain-Source Voltage

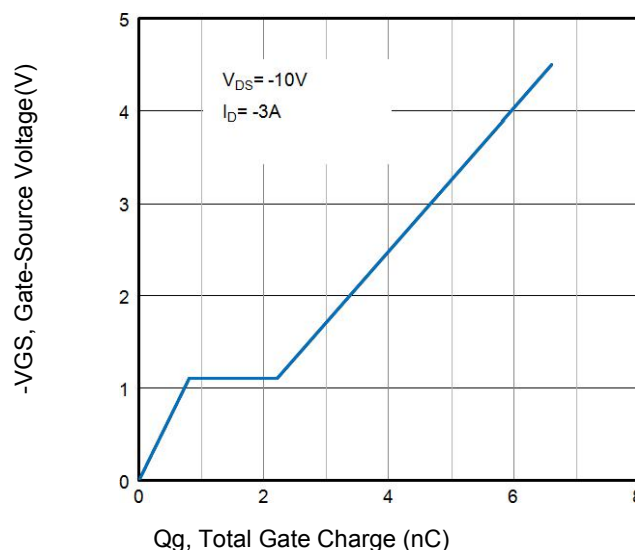


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

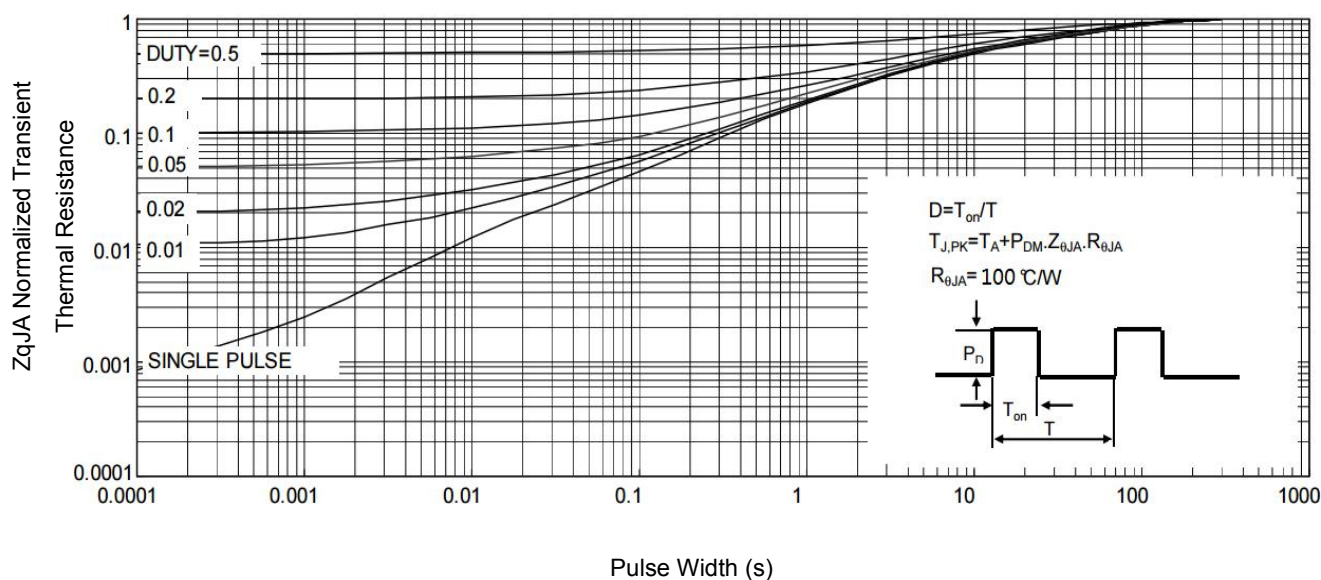


Fig9. Normalized Maximum Transient Thermal Impedance

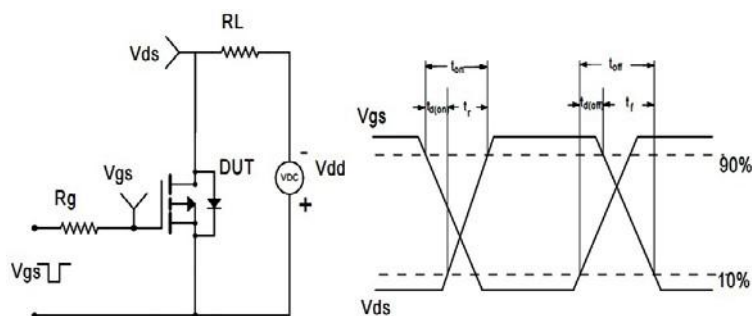
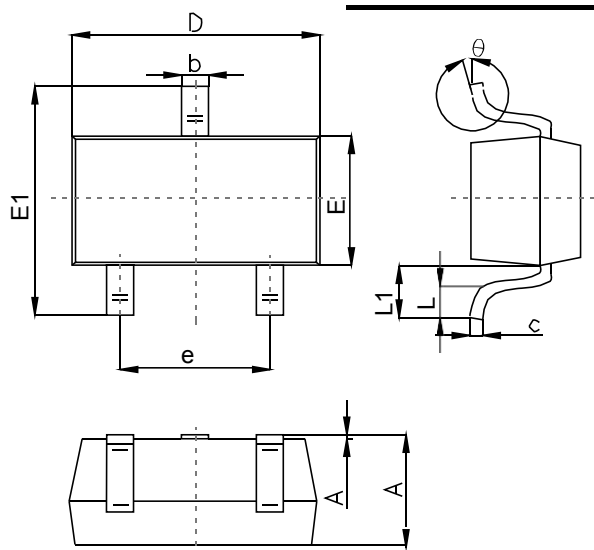


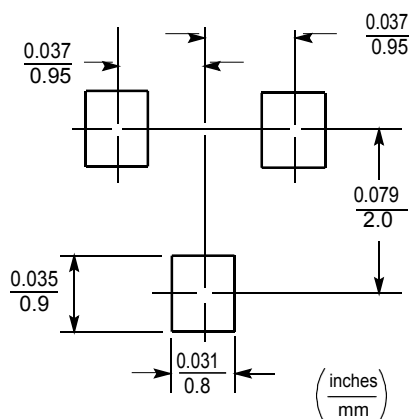
Fig10. Switching Time Test Circuit and waveforms

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.