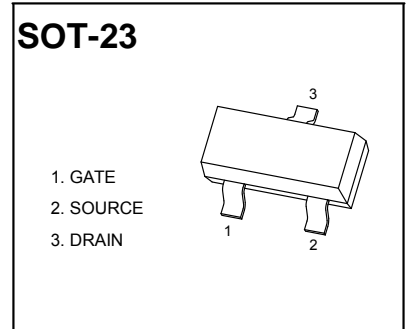


SOT-23 Plastic-Encapsulate MOSFETS
30V N-Channel MOSFET

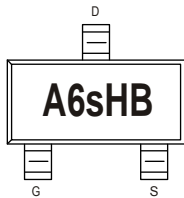
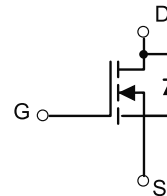
$V_{(BR)DSS}$	$R_{DS(on)Typ}$	$I_D Max$
30V	28mΩ@10V	5.0A
	38mΩ@4.5V	


FEATURE

- Trench FET Power MOSFET

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

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}	±20		
Continuous Drain Current	I_D	$T_A = 25^\circ C$	5.0	A
		$T_A = 70^\circ C$	4	
Pulsed Drain Current ¹⁾	I_{DM}	20.4	A	
Maximum Power Dissipation ^{1), 2)}	P_D	$T_A = 25^\circ C$	1.5	W
		$T_A = 70^\circ C$	0.9	
Junction Temperature	T_J	150	°C	
Storage Temperature	T_{stg}	-50 to 150	°C	
Thermal Resistance from Junction-to-Ambient (t≤5s)	$R_{\theta JA}$	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

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D=250\mu A$	30			V
Gate-body leakage	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
		$V_{DS} = 24V, V_{GS} = 0V$			100	μA
Gate-threshold voltage (note 1)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.6	2.5	V
Drain-source on-resistance (note 1)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 4A$		28	36	m Ω
		$V_{GS} = 4.5V, I_D = 3A$		38	50	
Forward transconductance (note 1)	g_{FS}	$V_{DS} = 4.5V, I_D = 2.5A$		7		S
Dynamic characteristics						
Gate Resistance	R_g	$f=1MHz$	2.5	5	7.5	Ω
Total Gate C charge	Q_g	$V_{DS} = 15V, I_D = 4A, V_{GS} = 10V$		6		nC
Gate-Source Charge	Q_{gs}			0.5		
Gate-Drain Charge	Q_{gd}			1.3		
Input capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f=1MHz$		240		pF
Output capacitance	C_{oss}			35		
Reverse transfer capacitance	C_{rss}			30		
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{DD}=15V, V_{GS}=10V, I_D = 1A, R_G=3.3\Omega$		4.4		ns
Rise time	t_r			2.6		
Turn-off delay time	$t_{d(off)}$			25.5		
Fall time	t_f			3.3		
Drain-source body diode characteristics						
Source drain current(Body Diode)	I_{SD}				1.8	A
Body diode forward voltage (note 1)	V_{SD}	$I_{SD}=4A, V_{GS} = 0V$		0.85	1.2	V

Notes :

1. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle 2 %.

Typical Characteristics

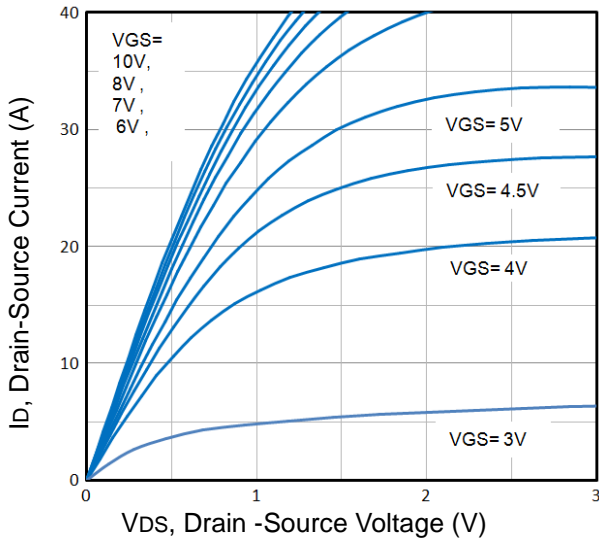


Fig1. Typical Output Characteristics

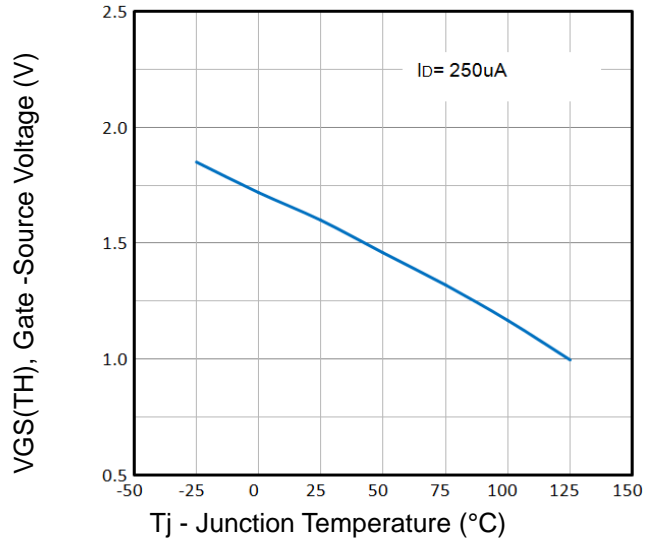


Fig2. Normalized Threshold Voltage Vs. Temperature

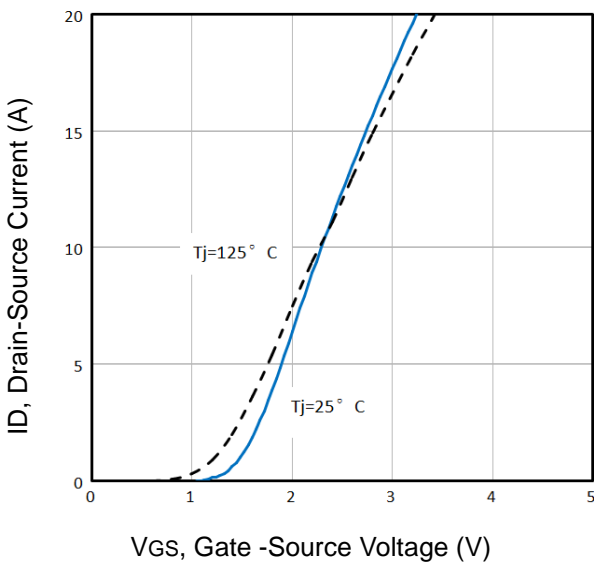


Fig3. Typical Transfer Characteristics

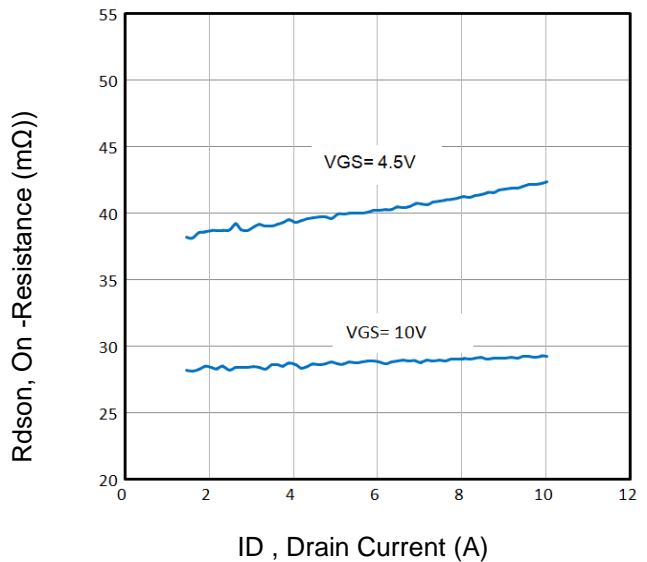


Fig4. On-Resistance vs. Drain Current and Gate

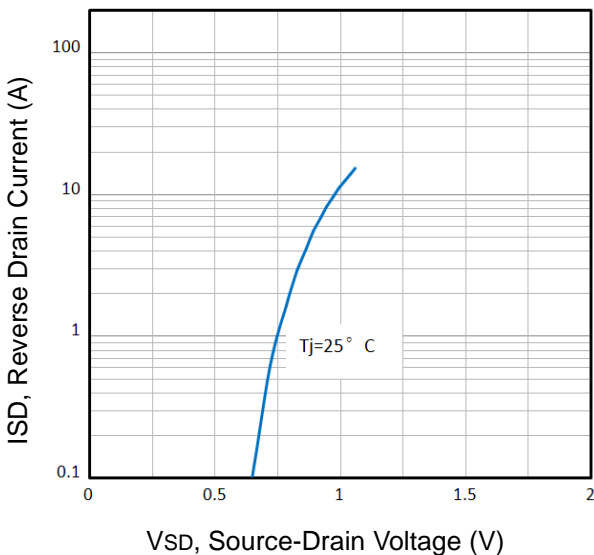


Fig5. Typical Source-Drain Diode Forward Voltage

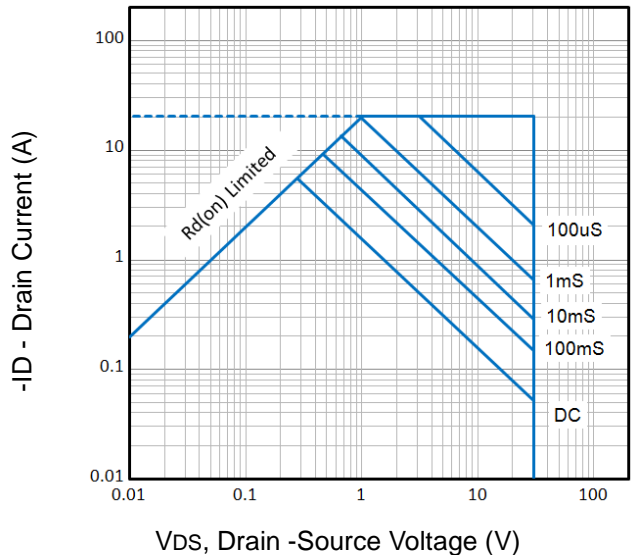


Fig6. Maximum Safe Operating Area

Typical Characteristics

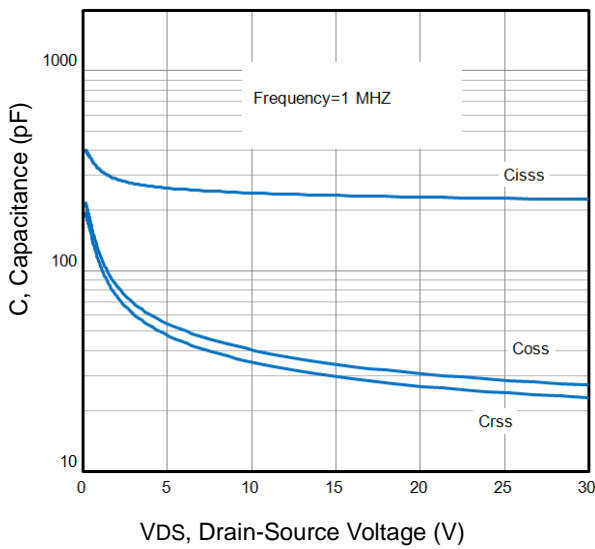


Fig7. Typical Capacitance Vs. Drain-Source Voltage

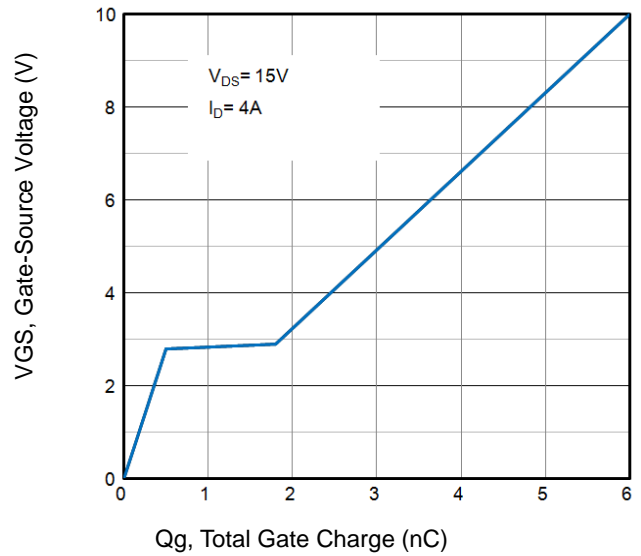


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

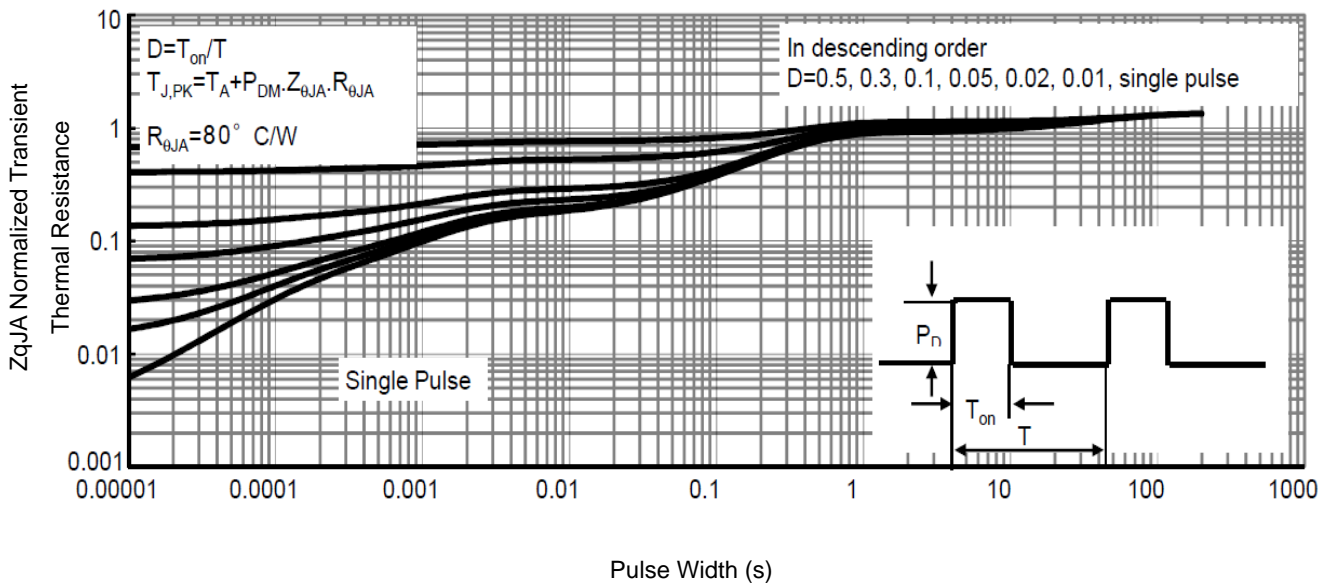


Fig9. Normalized Maximum Transient Thermal Impedance

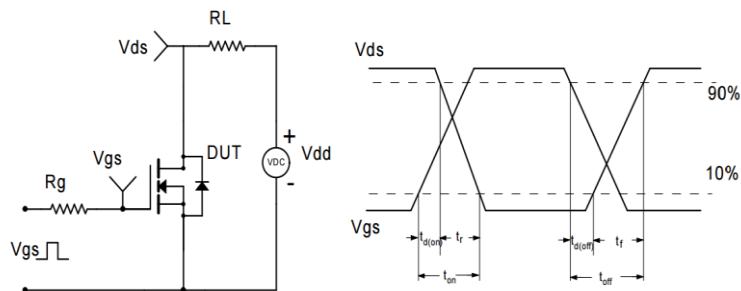
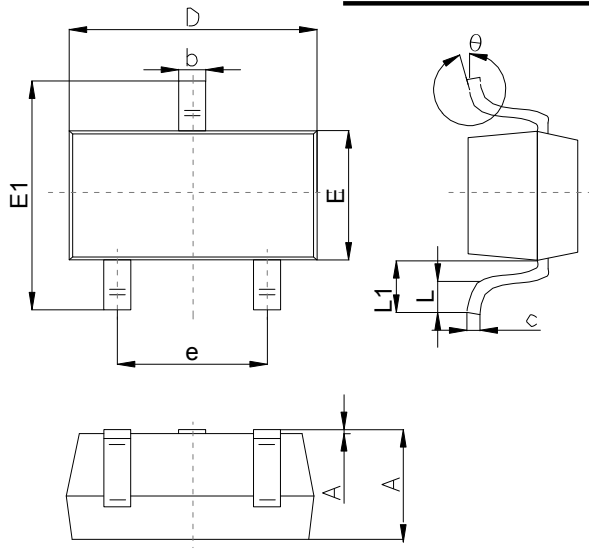


Fig10. Switching Time Test Circuit and waveforms

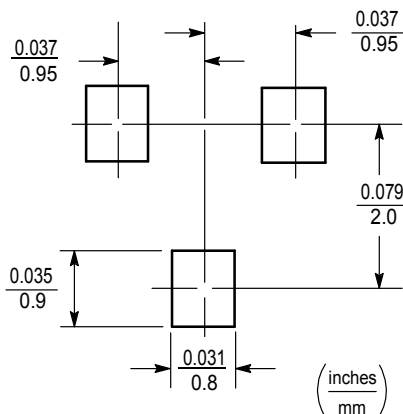
Outlitne Drawing

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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