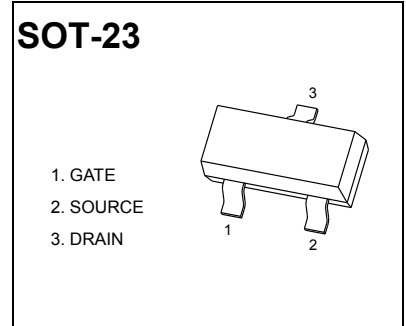


SOT-23 Plastic-Encapsulate MOSFETS

30V N-Channel Enhancement Mode Field Effect Transistor

$V_{(BR)DSS}$	$R_{DS(on)}$ Typ	I_D
30V	27mΩ @ 4.5V	5.8A
	29mΩ @ 3.3V	



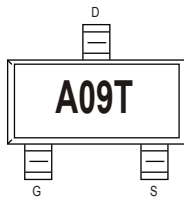
FEATURE

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

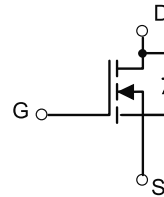
APPLICATION

- 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'	330	3000	203×203×195	45000	438×438×220	180000

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	30	V	
Gate-Source Voltage	V_{GS}	±12		
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	5.8	A
		$T_A=70^\circ\text{C}$	4.6	
Maximum Power Dissipation ²⁾	P_D	$T_A=25^\circ\text{C}$	1.5	W
		$T_A=70^\circ\text{C}$	0.9	
Pulsed Drain Current ¹⁾	I_{DM}	23	A	
Operating Junction and Storage Temperature Range	T_J	150	°C	
Storage Temperature Range	T_{stg}	-50 to 150	°C	
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	100	°C/W	

Notes

- 1) Pulse width limited by maximum junction temperature.
- 2) Surface Mounted on FR4 Board, $t \leq 5$ sec.
- 3) The above data are for reference only.

MOSFET ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			100	μA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
On characteristics						
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 5.8A$		27	32	m
		$V_{GS} = 3.3V, I_D = 4A$		29	45	m
		$V_{GS} = 2.5V, I_D = 2A$		35	50	m
Forward transconductance	g_{FS}	$V_{DS} = 5V, I_D = 5A$	8			S
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.8	1.2	V
Dynamic Characteristics (note 4)						
Input capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		635		pF
Output capacitance	C_{oss}			135		pF
Reverse transfer capacitance	C_{rss}			40		pF
Total Gate Charge	Q_g	$V_{DS} = 15V$ $I_D = 5A,$ $V_{GS} = 4.5V$		10.5		nC
Gate Source Charge	Q_{gs}			1.6		nC
Gate Drain Charge	Q_{gd}			2.7		nC
Switching Characteristics (note 4)						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 15V,$ $I_D = 5A,$ $R_G = 3.3\Omega,$ $V_{GS} = 4.5V$		7.5		ns
Turn-on rise time	t_r			18		ns
Turn-off delay time	$t_{d(off)}$			36		ns
Turn-off fall time	t_f			5		ns
Drain-source diode characteristics and maximum ratings						
Source drain current(Body Diode)	I_{SD}	$T_A = 25^\circ\text{C}$			1.5	A
Diode forward voltage (note 3)	V_{SD}	$I_S = 3A, V_{GS} = 0V$		0.82	1.2	V

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 5$ sec.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

Typical Characteristics

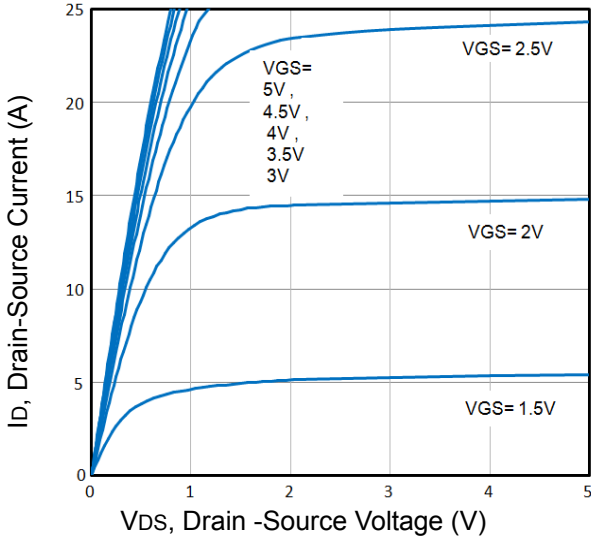


Fig1. Typical Output Characteristics

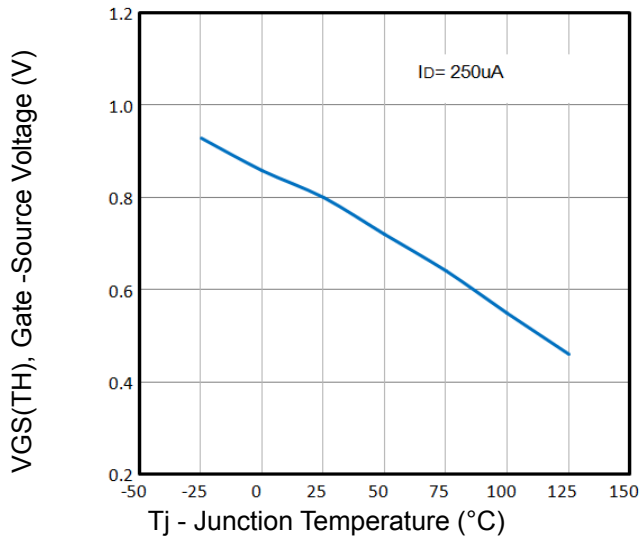


Fig2. Normalized Threshold Voltage Vs. Temperature

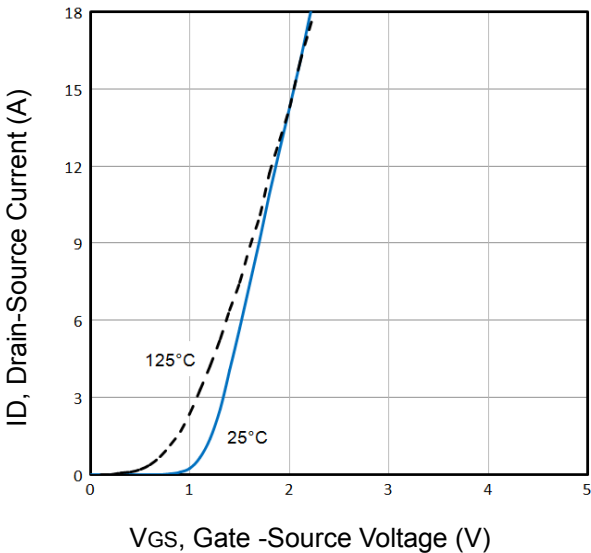


Fig3. Typical Transfer Characteristics

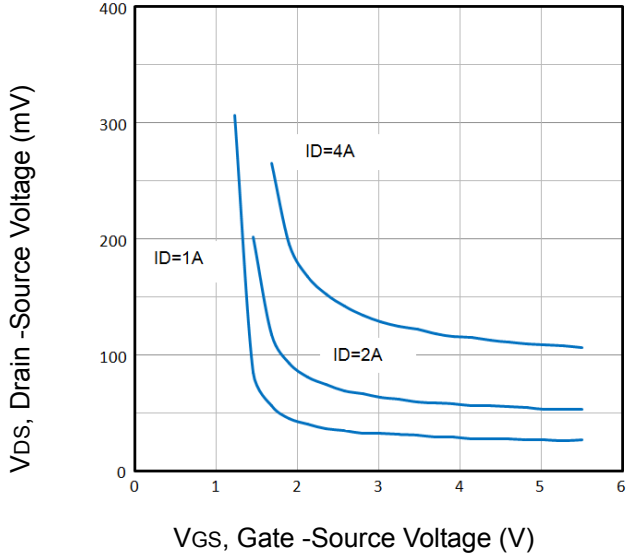


Fig4. Drain-Source Voltage vs Gate-Source Voltage

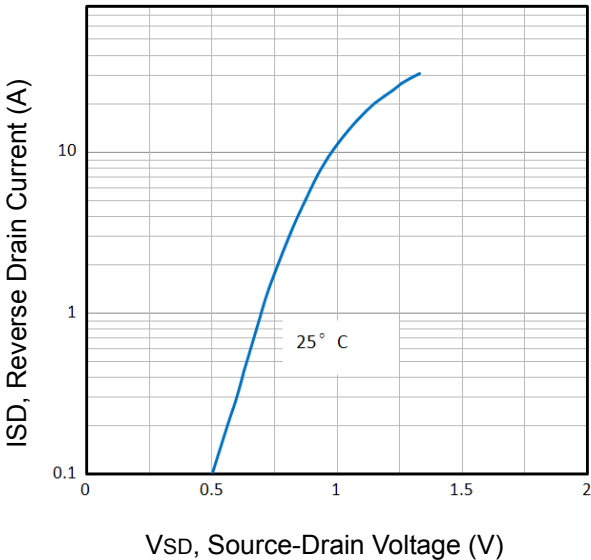


Fig5. Typical Source-Drain Diode Forward Voltage

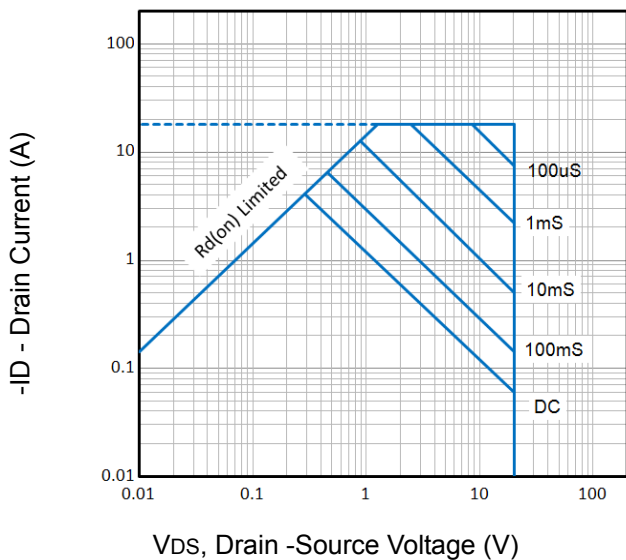


Fig6. Maximum Safe Operating Area

The curve above is for reference only.

Typical Characteristics

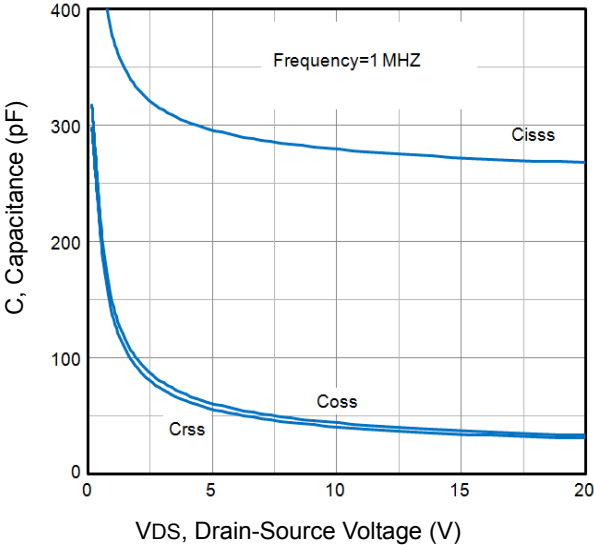


Fig7. Typical Capacitance Vs. Drain-Source Voltage

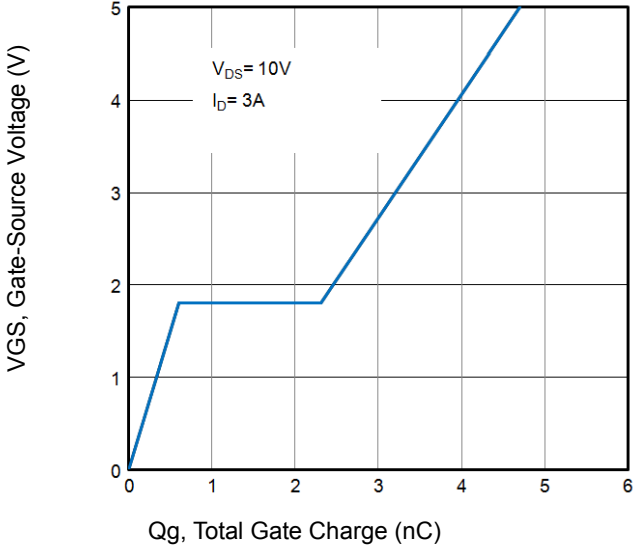


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

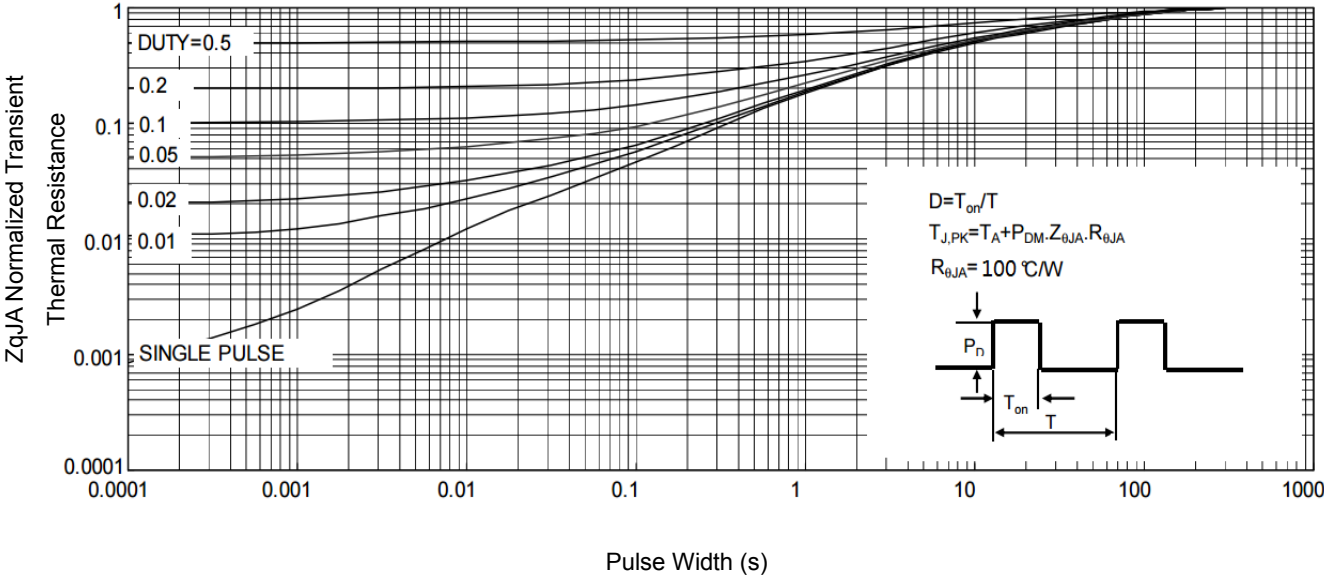


Fig9. Normalized Maximum Transient Thermal Impedance

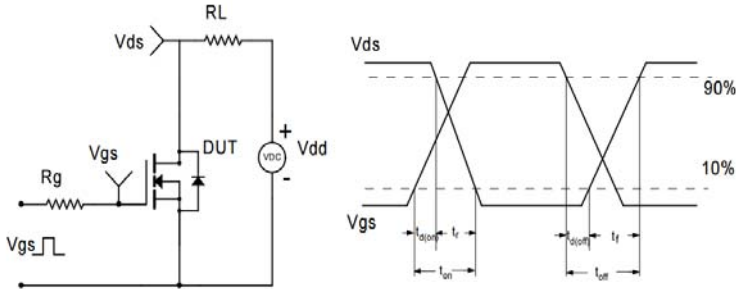
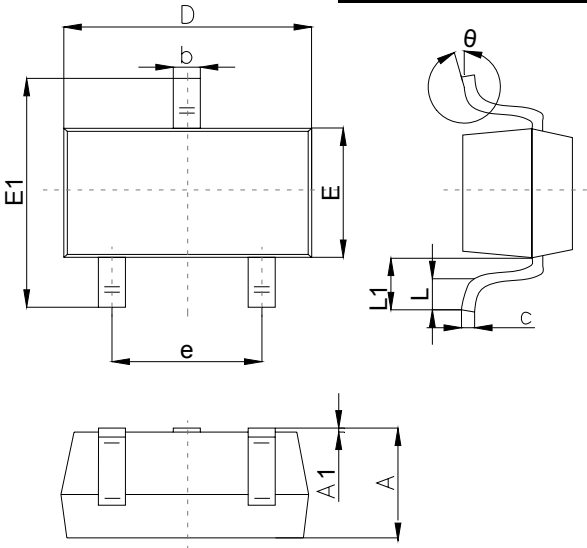


Fig10. Switching Time Test Circuit and waveforms

The curve above is for reference onl .

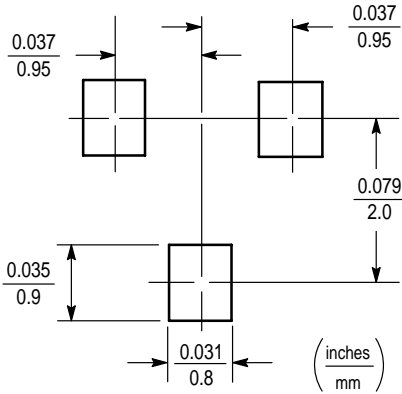
Outline Drawing

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: ±0.05mm.
 3. The pad layout is for reference purposes only.