

## SOT-23 Plastic-Encapsulate MOSFETS

### Features

- $V_{DS}=20V$
- $I_D=3A$
- $R_{DS(on)}@V_{GS}=4.5V < 45m\Omega$
- $R_{DS(on)}@V_{GS}=2.5V < 58m\Omega$
- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Fast Switching Speed

### Applications

- Battery operated systems
- Solid-state relays
- Direct logic-level interface: TTL/CMOS

### Mechanical Data

- Case: SOT-23  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

### Reference News

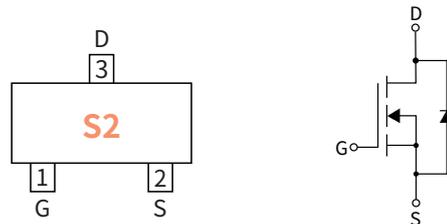
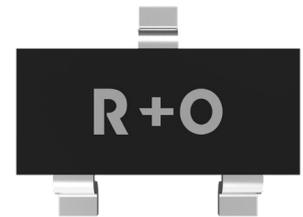
**Drain-source Voltage**

20 V

**Drain Current**

3 Ampere

SOT-23



### Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER		SYMBOL	UNIT	VALUE
Drain-source Voltage		$V_{DS}$	V	20
Gate-source Voltage		$V_{GS}$	V	$\pm 10$
Drain Current	$T_A=25^\circ C$ @ Steady State	$I_D$	A	3.0
Pulsed Drain Current <sup>(1)</sup>		$I_{DM}$	A	8.0
Total Power Dissipation @ $T_A=25^\circ C$		$P_D$	mW	700
Thermal Resistance Junction-to-Ambient @ Steady State <sup>(2)</sup>		$R_{\theta JA}$	$^\circ C / W$	178
Junction and Storage Temperature Range		$T_J, T_{STG}$	$^\circ C$	-55 ~ +150

Note:

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

(2) Surface Mounted on FR4 Board.

### Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	45000	180000	7"

● **Static Parameter Characteristics** (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	V	20	—	—
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$	$\mu A$	—	—	1.0
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8.0V, V_{DS}=0V$	nA	—	—	$\pm 100$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.55	0.75	1.1
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=2.5A$	m $\Omega$	—	45	55
		$V_{GS}=2.5V, I_D=2.0A$		—	58	72
Diode Forward Voltage	$V_{SD}$	$I_S=2.5A, V_{GS}=0V$	V	—	—	1.2

● **Dynamic Parameters** (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	$C_{iss}$	$V_{DS}=10V$ $V_{GS}=0V$ $f=1MHz$	pF	—	120	—
Output Capacitance	$C_{oss}$			—	30	—
Reverse Transfer Capacitance	$C_{rss}$			—	25	—

● **Switching Parameters** (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	$Q_g$	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=2.5A$	nC	—	4.5	—
Gate-Source Charge	$Q_{gs}$			—	0.8	—
Gate-Drain Charge	$Q_{gd}$			—	0.5	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V$ $V_{DS}=10V$ $R_G=3.0\Omega$ $I_D=2.5A$	ns	—	3.0	—
Turn-on Rise Time	$t_r$			—	29	—
Turn-off Delay Time	$t_{D(off)}$			—	6.0	—
Turn-off fall Time	$t_f$			—	22	—

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

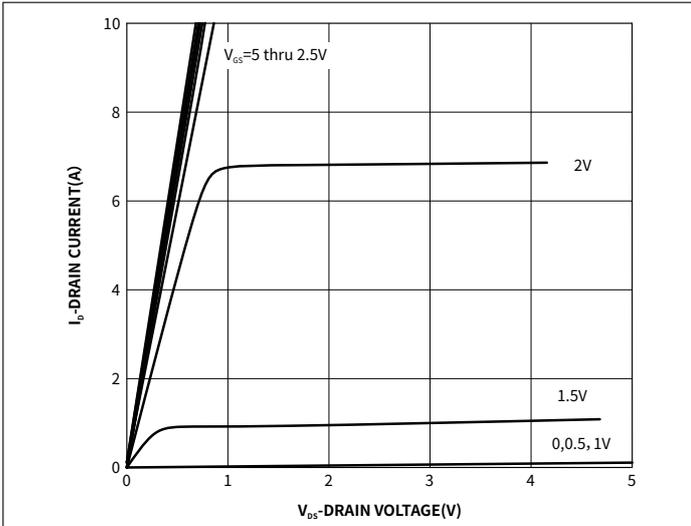


Fig.1 Output Characteristics

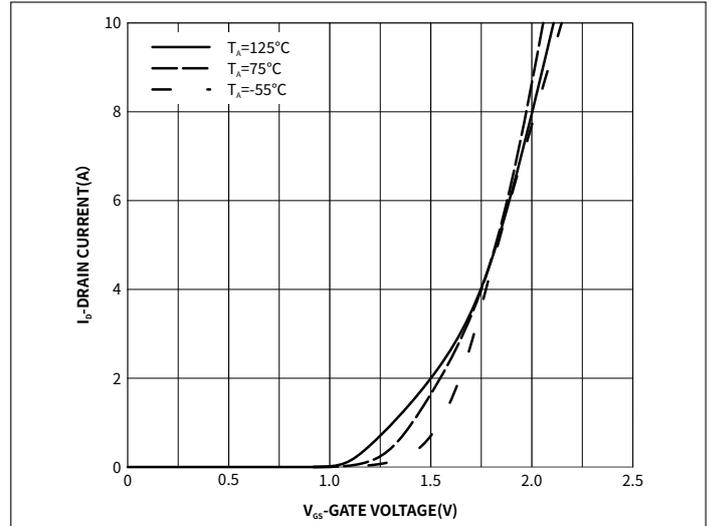


Fig.2 Transfer Characteristics

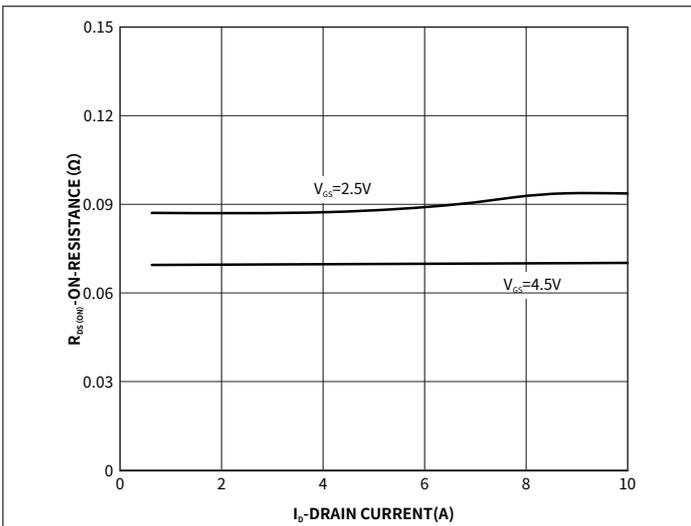


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

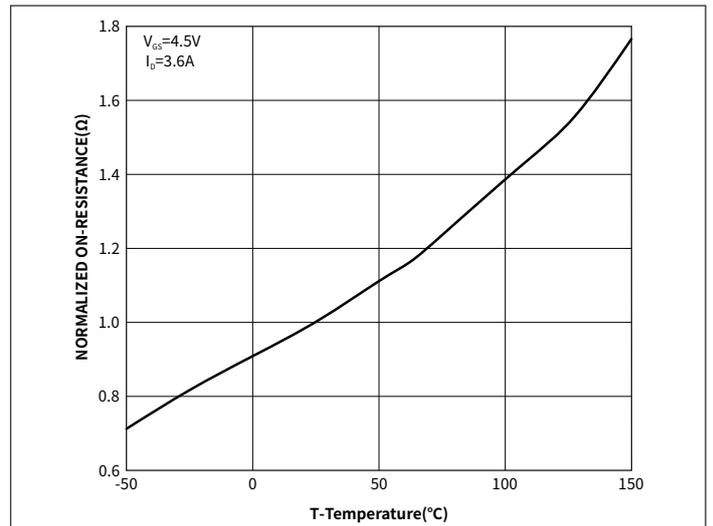


Fig.4 On-Resistance vs. Junction Temperature

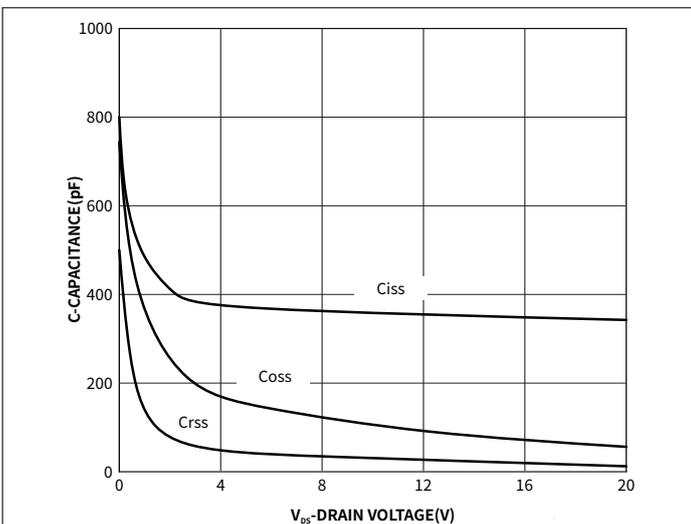


Fig.5 Capacitance Characteristics

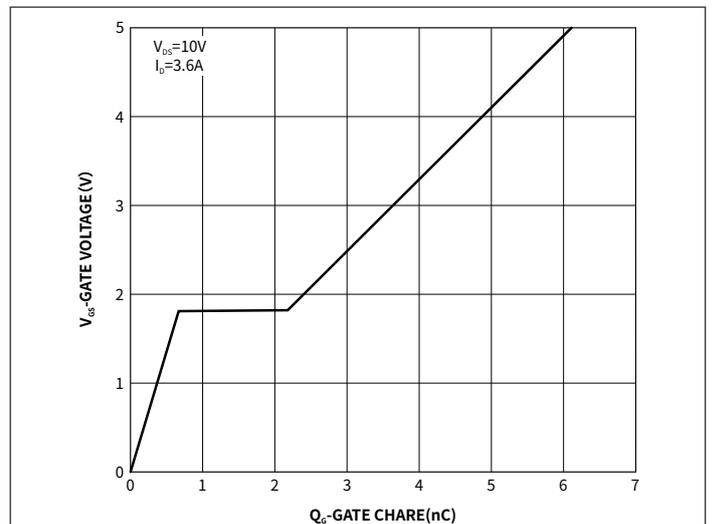
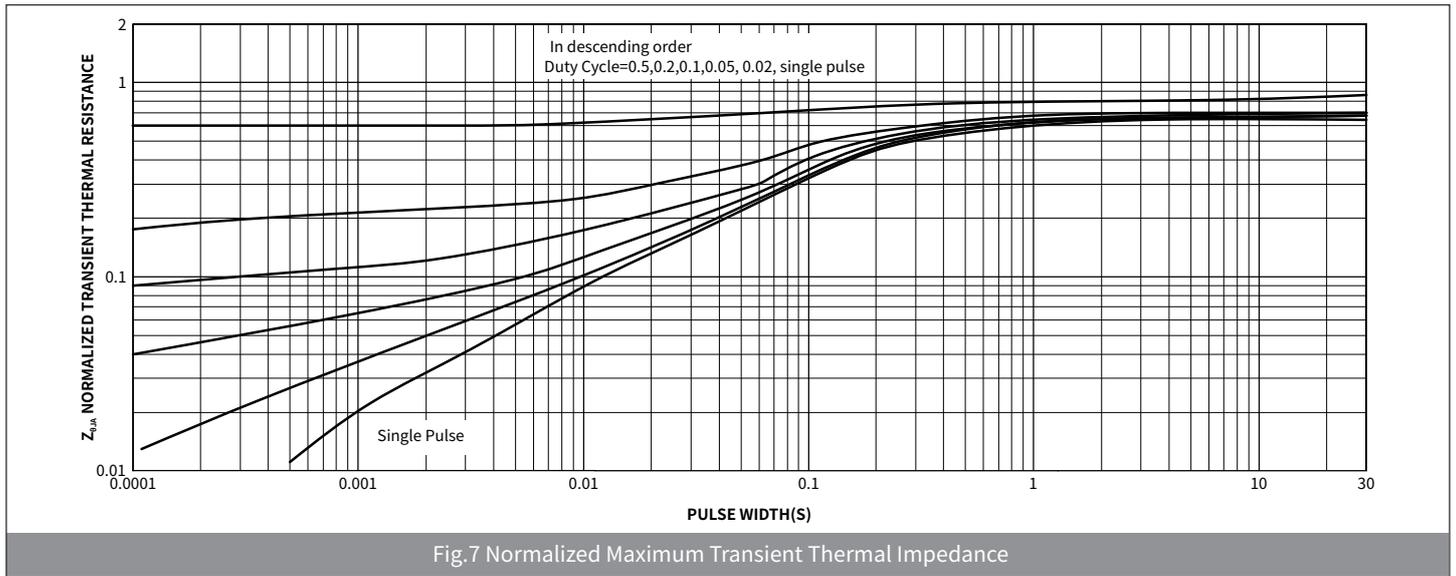
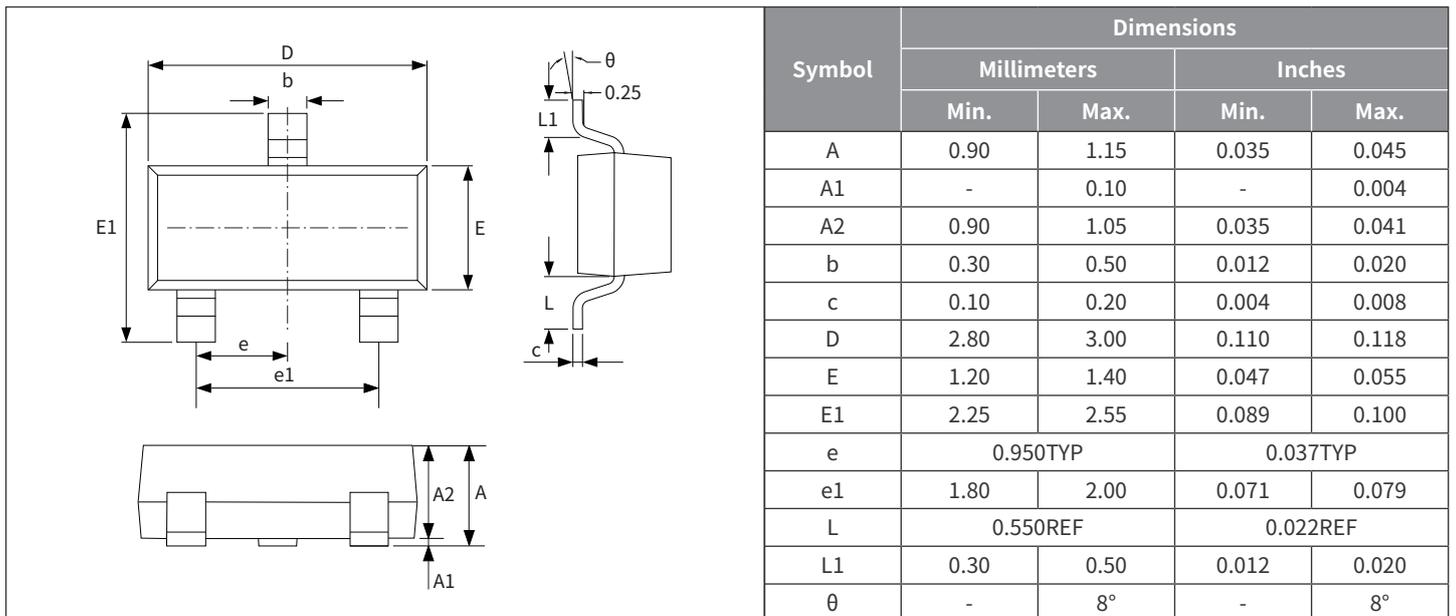


Fig.6 Gate Charge

## ● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



## ● Package Outline Dimensions (SOT-23)



## ● Suggested Pad Layout

