

## SOT-23 Plastic-Encapsulate MOSFETS

### Features

- $V_{DS}=20V$
- $I_D=5.5A$
- $R_{DS(on)}@V_{GS}=4.5V < 25m\Omega$
- $R_{DS(on)}@V_{GS}=2.5V < 32m\Omega$
- 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

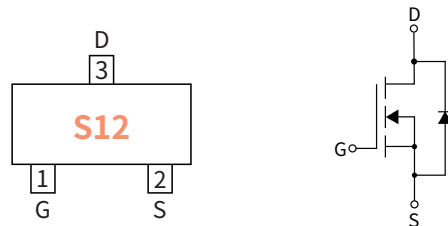
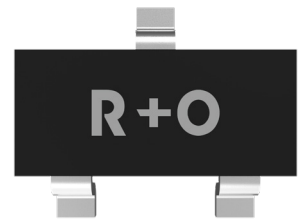
**Drain-source Voltage**

20 V

**Drain Current**

5.5 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 <sup>(1)</sup>	$I_D$	A	5.5
T <sub>A</sub> =25°C @ Steady State			
Pulsed Drain Current <sup>(2)</sup>	$I_{DM}$	A	20
Total Power Dissipation @ T <sub>A</sub> =25°C	$P_D$	W	1.2
Thermal Resistance Junction-to-Ambient @ Steady State <sup>(1)</sup>	$R_{\theta JA}$	°C / W	104
Junction and Storage Temperature Range	$T_J, T_{STG}$	°C	-55 ~ +150

Note:

(1) Surface Mounted on 1" x 1" FR4 Board. Pulse test.

(2) Pulse width limited by maximum junction temperature.

### 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	0.45	0.62	1.0
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=4.5A$	m $\Omega$	—	19.5	25
		$V_{GS}=2.5V, I_D=3.0A$		—	25	32
		$V_{GS}=1.8V, I_D=2.7A$		—	33	49
Forward Transconductance	$g_{fs}$	$V_{DS}=15V, I_D=5.0A$	S	—	40	—
Diode Forward Voltage	$V_{SD}$	$I_S=4.5A, V_{GS}=0V$	V	—	0.8	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	—	418	—
Output Capacitance	$C_{oss}$			—	82	—
Reverse Transfer Capacitance	$C_{rss}$			—	70	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	$Q_g$	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=4.5A$	nC	—	6.0	—
Gate-Source Charge	$Q_{gs}$			—	1.0	—
Gate-Drain Charge	$Q_{gd}$			—	2.0	—
Reverse Recovery Time	$t_{rr}$	$I_F=1.0A, di/dt=-100A/\mu s$	ns	—	13	25
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V$ $V_{DS}=10V$ $R_G=3.0\Omega$ $I_D=4.5A$		—	4.0	—
Turn-on Rise Time	$t_r$			—	20	—
Turn-off Delay Time	$t_{D(off)}$			—	23	—
Turn-off fall Time	$t_f$			—	23	—

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

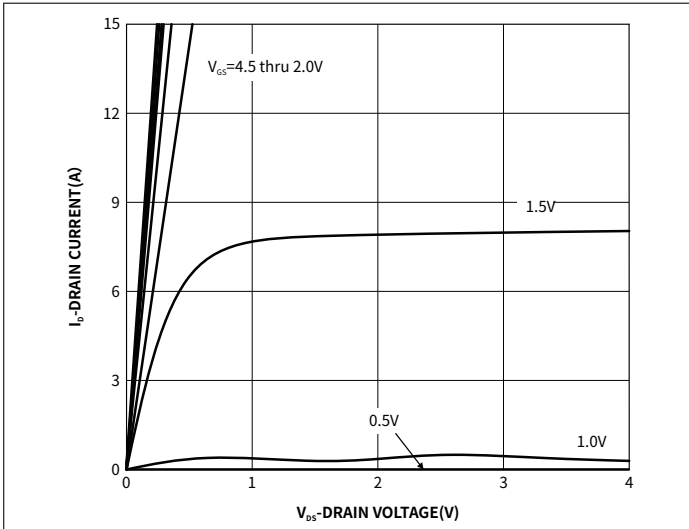


Fig.1 Output Characteristics

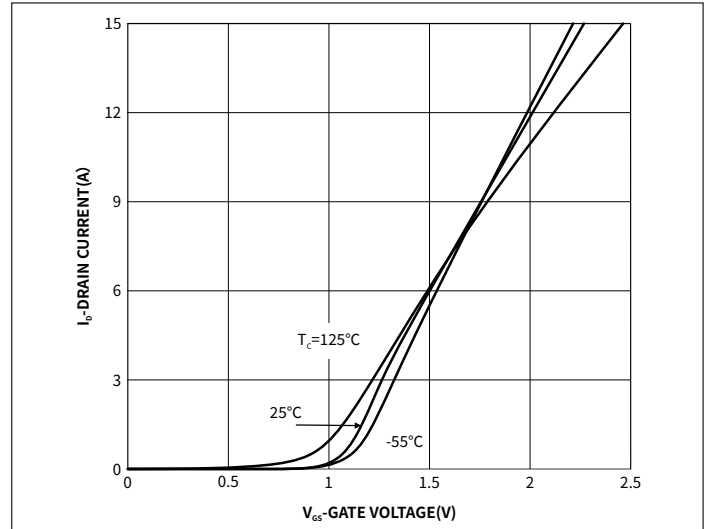


Fig.2 Transfer Characteristics

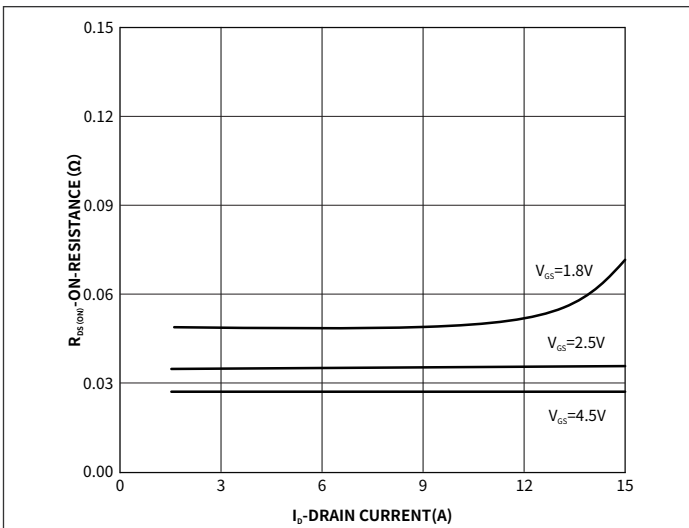


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

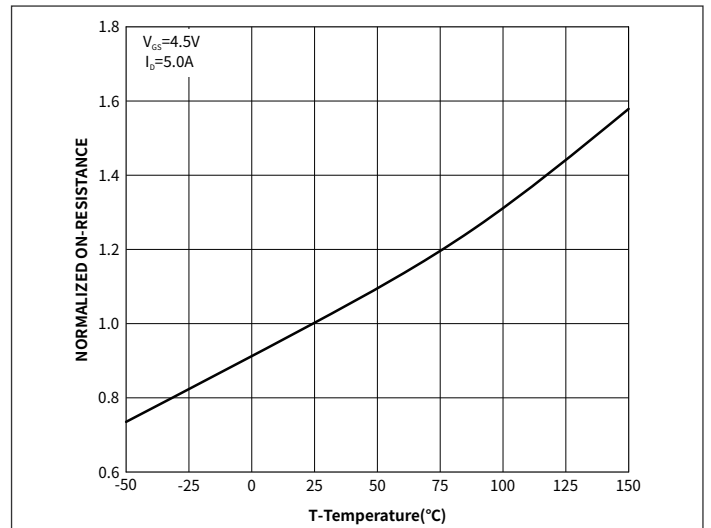


Fig.4 On-Resistance vs. Junction Temperature

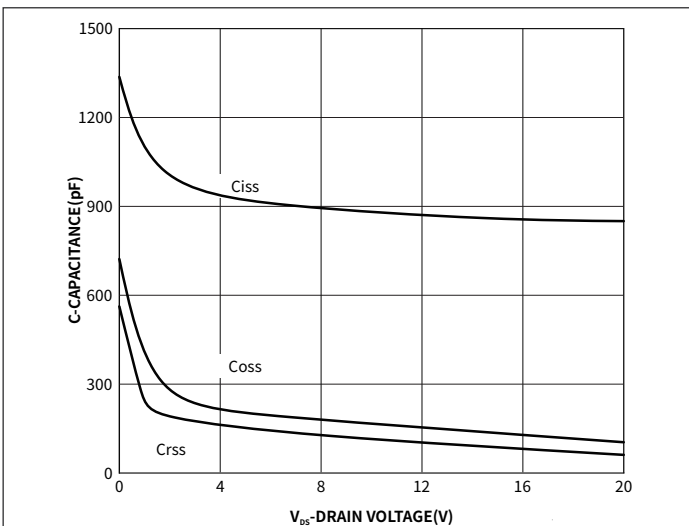


Fig.5 Capacitance Characteristics

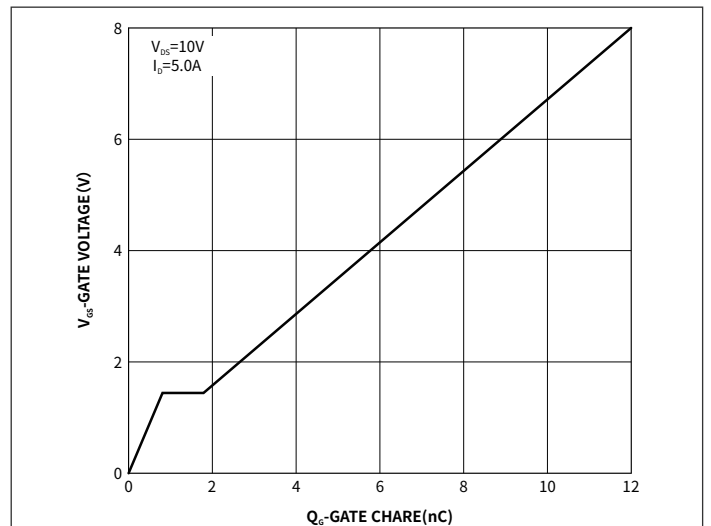
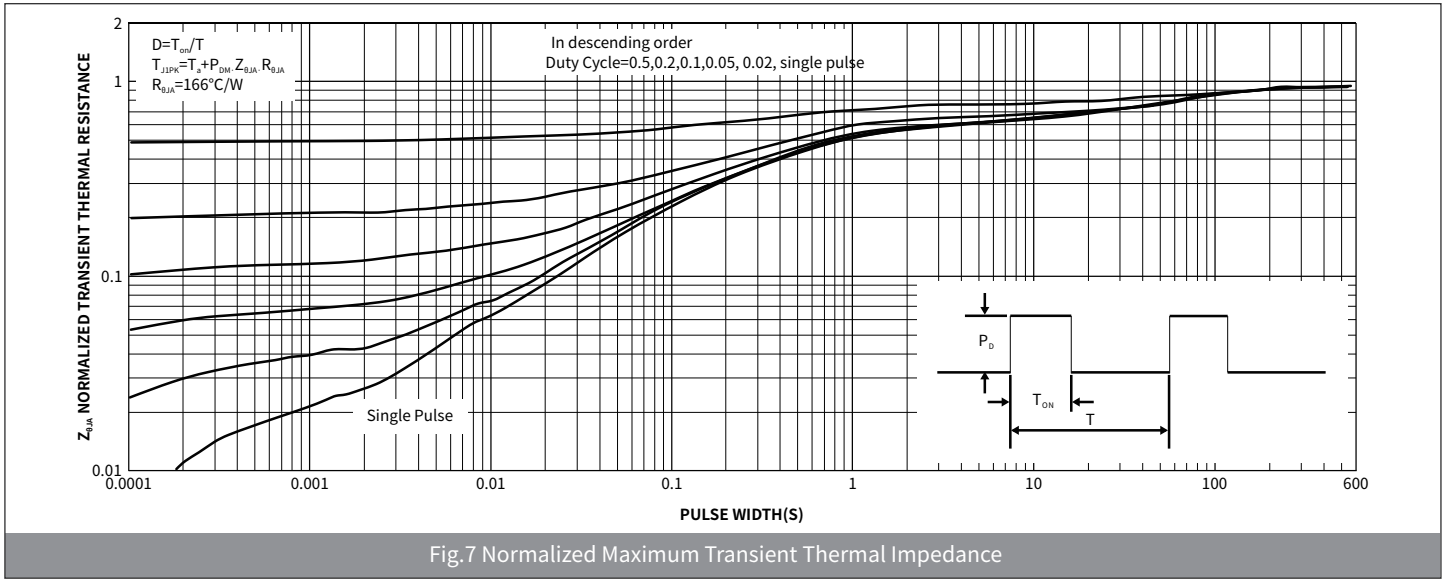
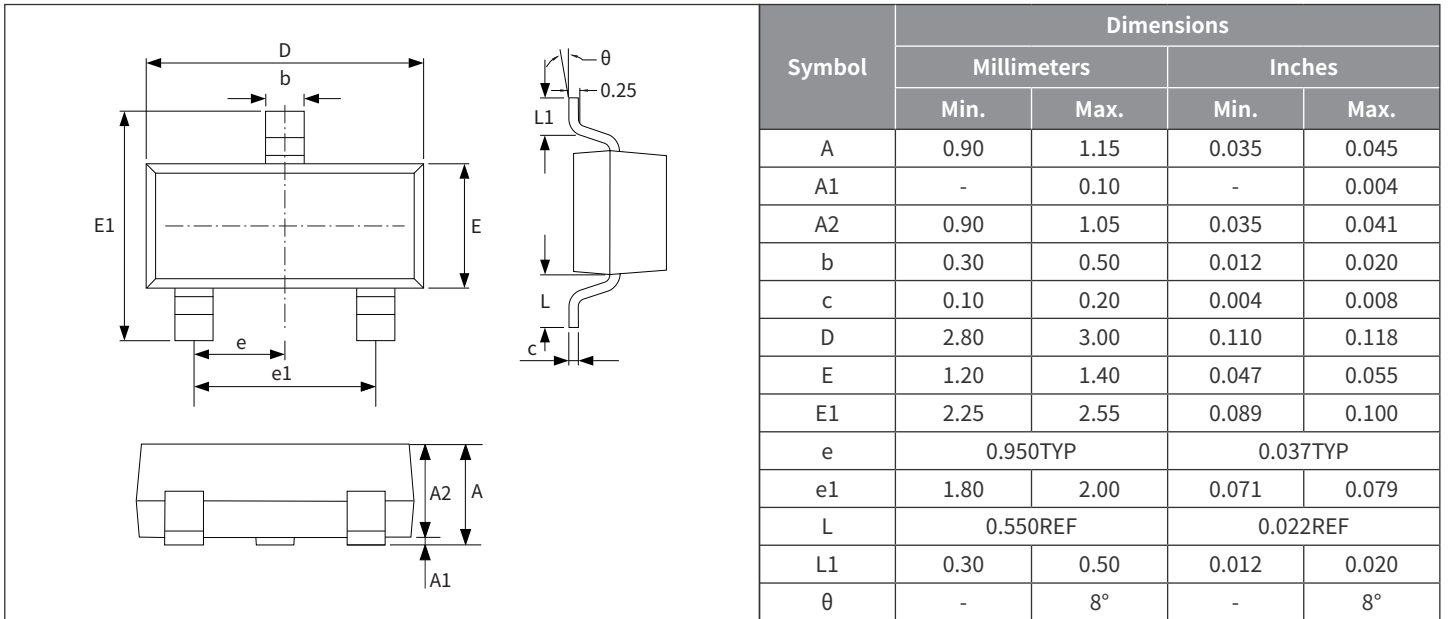


Fig.6 Gate Charge

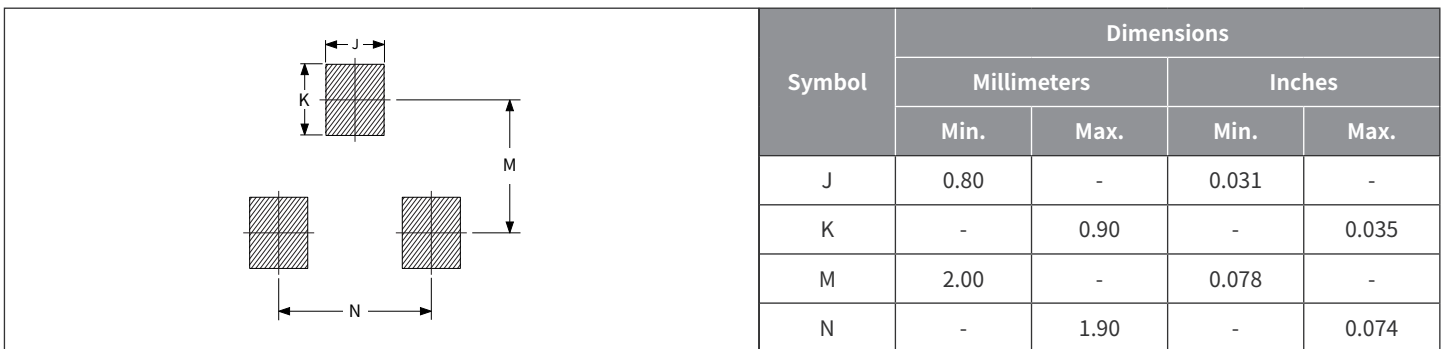
## ● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



## ● Package Outline Dimensions (SOT-23)



## ● Suggested Pad Layout



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