

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=20V$
- $I_D=3A$
- $R_{DS(on)}@V_{GS}=4.5V < 55m\Omega$
- $R_{DS(on)}@V_{GS}=2.5V < 70m\Omega$
- Advanced trench technology
- Fast switching

Applications

- Load switching
- Power management
- PWM application

Mechanical Data

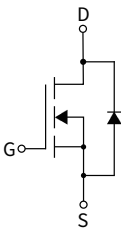
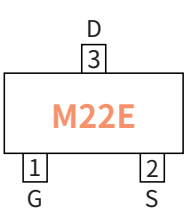
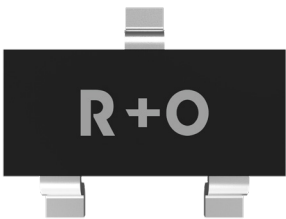
- Case: SOT-23
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram

Drain-source Voltage
20 V

Drain Current
3 Ampere

SOT-23



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	120000	7"

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	± 12
Drain Current	$T_A=25^{\circ}C$ @ Steady State	I_D	A	3
Pulsed Drain Current		I_{DM}	A	12
Total Power Dissipation @ $T_A=25^{\circ}C$		P_D	mW	800
Thermal Resistance Junction-to-Ambient ⁽¹⁾		$R_{\theta JA}$	$^{\circ}C / W$	156
Junction and Storage Temperature Range		T_J, T_{STG}	$^{\circ}C$	-55 ~+150

● 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}	$V_{DS}=20V, V_{GS}=0V$	μA	—	—	1
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.4	0.7	1.2
Static Drain-Source On-Resistance ⁽²⁾	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3A$	m Ω	—	40	55
		$V_{GS}=2.5V, I_D=2.8A$		—	55	70

● 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	—	242	—
Output Capacitance	C_{oss}			—	58.5	—
Reverse Transfer Capacitance	C_{rss}			—	47	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=3A$	nC	—	3.6	—
Gate-Source Charge	Q_{gs}			—	0.9	—
Gate-Drain Charge	Q_{gd}			—	0.8	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V$ $V_{DS}=10V$ $R_G=3\Omega$ $I_D=3A$	ns	—	6.8	—
Turn-on Rise Time	t_r			—	57	—
Turn-off Delay Time	$t_{D(off)}$			—	14	—
Turn-off fall Time	t_f			—	53	—

● Drian-Source Diode Characteristics

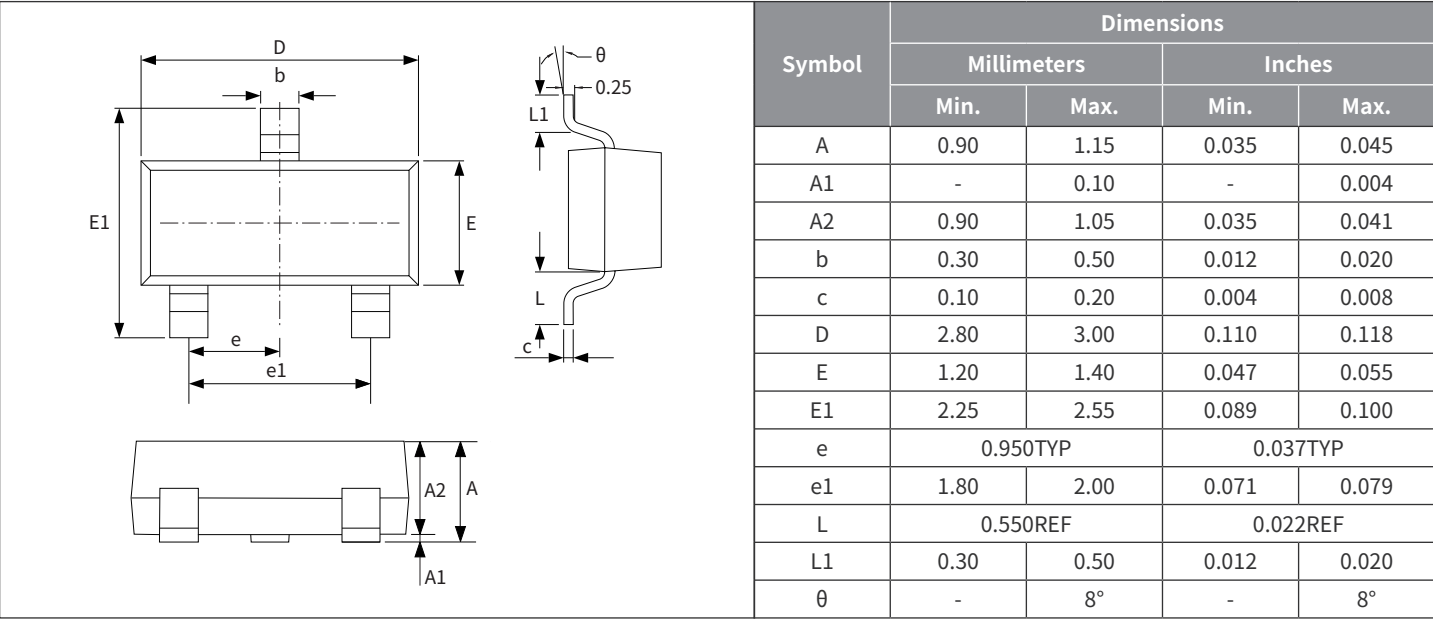
PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	$I_S=3A, V_{GS}=0V$	V	—	—	1.2
Maximum Body-Diode Continuous Current ⁽³⁾	I_S	—	A	—	—	3

Note:(1)Repetitive rating;pulse with limited by max. junction temperature.

(2)Surface mounted on 1 inch² FR-4 board with 20Z copper.

(3)Pulse with $\leq 300\mu s$;duty cycle $\leq 0.5\%$.

● Package Outline Dimensions (SOT-23)



● Suggested Pad Layout

