

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS} = -20V$
- $I_D = -0.7A$
- $R_{DS(on)}@V_{GS} = -4.5V < 520m\Omega$
- $R_{DS(on)}@V_{GS} = -2.5V < 780m\Omega$
- Advanced Trench Process Technology
- Voltage controlled small signal switch
- Fast Switching Speed

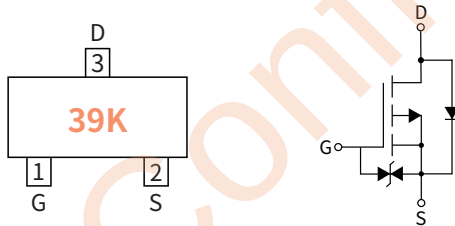
Applications

- Load Switch for Portable Devices
- Voltage controlled small signal switch

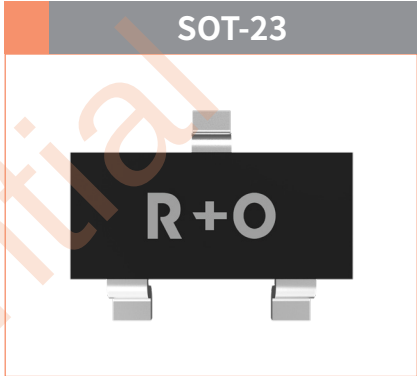
Mechanical Data

- 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
-0.7 Ampere



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	I_D	A	-0.7
Pulsed Drain Current ⁽¹⁾	I_{DM}	A	-1.2
Total Power Dissipation ⁽²⁾	P_D	W	1
ESD Protected Up to	ESD(HBM)	kV	2.0
Thermal Resistance Junction-to-Ambient @ Steady State ⁽²⁾	$R_{\theta JA}$	°C / W	120
Junction and Storage Temperature Range	T_J, T_{STG}	°C	-55 ~ +150

Note :
(1)Pulse width $\leq 100\mu s$, duty cycle $\leq 1\%$, limited by T_{jmax} .
(2)Device mounted on FR-4 substrate PC board, 2ozcopper, with 1-inch square copper plate in still air.

● 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	—	—	-1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	μA	—	—	± 20
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	V	-0.35	-0.66	-1.1
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.5A$	m Ω	—	400	520
		$V_{GS}=-2.5V, I_D=-0.3A$		—	520	780

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=0V$ $V_{GS}=-16V$ $f=1MHz$	pF	—	113	—
Output Capacitance	C_{oss}			—	15	—
Reverse Transfer Capacitance	C_{rss}			—	9	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=-4.5V$ $V_{DS}=-10V$ $I_D=-0.65A$	nC	—	1.24	—
Gate-Source Charge	Q_{gs}			—	0.37	—
Gate-Drain Charge	Q_{gd}			—	0.27	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=-4.5V$ $V_{DS}=-10V$ $I_D=-0.2A$ $R_{GEN}=10\Omega$	nS	—	9.0	—
Turn-on Rise Time	t_r			—	5.7	—
Turn-off Delay Time	$t_{D(off)}$			—	32.6	—
Turn-off fall Time	t_f			—	20.3	—

● Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	$I_S=-0.7A, V_{GS}=0V$	V	—	—	-1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	-0.7

● Package Outline Dimensions (SOT-23)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.80	-	0.031	-
K	-	0.90	-	0.035
M	2.00	-	0.078	-
N	-	1.90	-	0.074