

SOT-523 Plastic-Encapsulate MOSFETS

Features

- $V_{DS} = -20V$
- $I_D = -0.7A$
- $R_{DS(on)}@V_{GS} = -4.5V < 510m\Omega$
- $R_{DS(on)}@V_{GS} = -2.5V < 775m\Omega$
- Advanced Trench Process Technology
- Voltage controlled small signal switch
- Fast Switching Speed

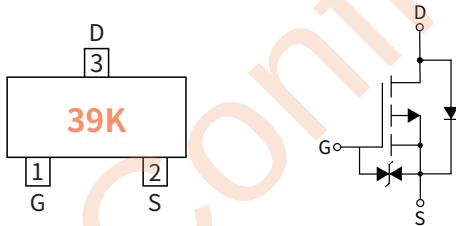
Applications

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

Mechanical Data

- Case: SOT-523
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Function Diagram



Ordering Information

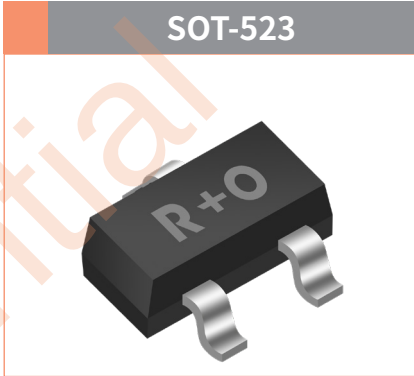
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-523	R1	0.0025	3000	30000	120000	7"

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	0.19
ESD Protected Up to	ESD(HBM)	kV	2.0
Thermal Resistance Junction-to-Ambient @ Steady State ⁽²⁾	$R_{\theta JA}$	°C / W	650
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.

Drain-source Voltage
-20 V
Drain Current
-0.7 Ampere



● 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	-0.7	-1.1
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.5A$	m Ω	—	450	510
		$V_{GS}=-2.5V, I_D=-0.3A$		—	560	775

● 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			—	5.8	—
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-523)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.65	0.85	0.026	0.033
A1	0.40	0.60	0.016	0.024
B	0.25	0.35	0.010	0.014
b	0.15	0.25	0.006	0.010
C	0.05	0.15	0.002	0.006
D	0.70	0.90	0.028	0.035
D1	1.50	1.70	0.059	0.067
E	1.5	1.7	0.059	0.067
e	0.95	1.05	0.037	0.041
H	-	0.10	-	0.004
L	0.17	-	0.007	-

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.70	0.020	0.028
B	0.60	0.80	0.024	0.031
C	0.90	1.10	0.035	0.043
D	1.20	1.40	0.047	0.055