

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=60V$
- $I_D=5A$
- $R_{DS(on)}@V_{GS}=10V < 45m\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 55m\Omega$
- Advanced trench technology
- Fast switching

Drain-source Voltage
60 V
Drain Current
5 Ampere

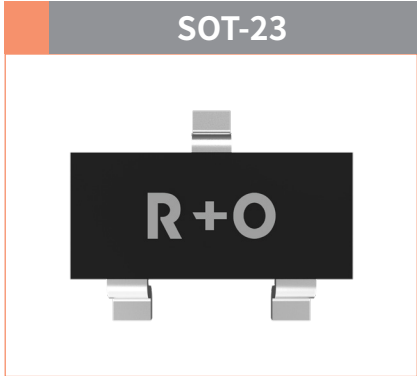
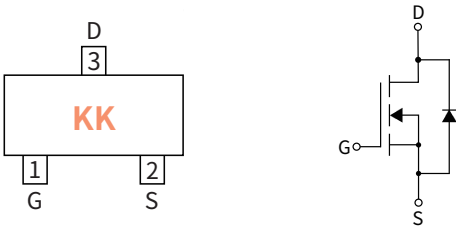
Applications

- Power Switching Application
- Uninterruptible Power Supply

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



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	180000	7"

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

PARAMETER	SYMBOL	UNIT	VALUE
Drain-source Voltage	V_{DS}	V	60
Gate-source Voltage	V_{GS}	V	± 20
Drain Current	I_D	A	5
Pulsed Drain Current ⁽¹⁾	I_{DM}	A	20
Total Power Dissipation	P_D	mW	1000
Thermal Resistance Junction-to-Ambient @ Steady State ⁽²⁾	$R_{\theta JA}$	$^{\circ}C / W$	125
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	60	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$	μA	—	—	1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage ⁽³⁾	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	1.2	1.6	2.5
Static Drain-Source On-Resistance ⁽³⁾	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$	m Ω	—	38	45
		$V_{GS}=4.5V, I_D=5A$		—	45	55

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=15V$ $V_{GS}=0V$ $f=1MHz$	pF	—	896	—
Output Capacitance	C_{oss}			—	92	—
Reverse Transfer Capacitance	C_{rss}			—	80	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=10V$ $V_{DS}=30V$ $I_D=4.5A$	nC	—	14	—
Gate-Source Charge	Q_{gs}			—	2.9	—
Gate-Drain Charge	Q_{gd}			—	5.2	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V$ $V_{DS}=30V$ $R_G=3\Omega$ $I_D=2A$	ns	—	5	—
Turn-on Rise Time	t_r			—	2.6	—
Turn-off Delay Time	$t_{D(off)}$			—	16.1	—
Turn-off fall Time	t_f			—	2.3	—

● Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage ⁽³⁾	V_{SD}	$I_S=5A, V_{GS}=0V$	V	—	—	1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	5

Note :

(1)Repetitive rating: pulse width limited by maximum junction temperature.

(2)Surface Mounted on FR4 Board, t ≤ 10 sec.

(3)Pulse test: pulse width ≤ 300μs, duty cycle ≤ 0.5%.

● 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