SOT-23 Plastic-Encapsulate MOSFETS

Features

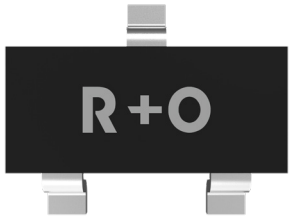
- V_{DS}=100V
- I_D=1.6A
- $R_{DS(on)}$@VGS=10V ＜ 250mΩ
- $R_{DS(on)}$@VGS=4.5V ＜ 270mΩ
- Advanced trench technology
- Fast switching

Drain-source Voltage
100 V
Drain Current
1.6 Ampere

Applications

- Load switching
- Power management

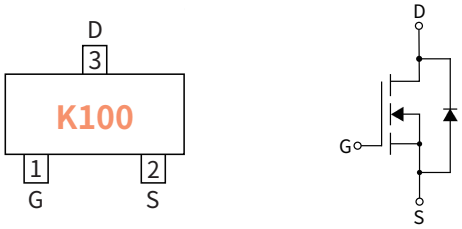
SOT-23



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	120000	7''

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

PARAMETER		SYMBOL	UNIT	VALUE
Drain-source Voltage		V_{DS}	V	100
Gate-source Voltage		V_{GS}	V	±16
Drain Current	T_A=25°C @ Steady State	I_D	A	1.6
Pulsed Drain Current		I_{DM}	A	7
Total Power Dissipation @ T_A=25°C		P_D	mW	1300
Thermal Resistance Junction-to-Ambient (1)		$R_{\theta JA}$	°C / W	100
Junction and Storage Temperature Range		T_J,T_{STG}	°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=250μA	V	100	—	—
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V	μA	—	—	20
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±16V, V_{DS}=0V	nA	—	—	±100
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	V	1	—	2.5
Static Drain-Source On-Resistance (2)	$R_{DS(ON)}$	V_{GS}= 10V, I_D=1.6A	mΩ	—	228	250
		V_{GS}= 4.5V, I_D=1.3A		—	245	270

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1MHz	pF	—	513	—
Output Capacitance	C_{oss}			—	256	—
Reverse Transfer Capacitance	C_{rss}			—	223	—

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

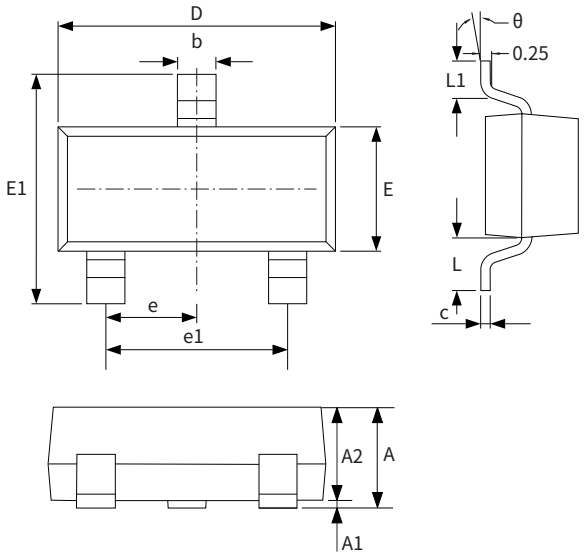
PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	V_{GS}=4.5V V_{DS}=50V I_D=1.6A	nC	—	2.5	—
Gate-Source Charge	Q_{gs}			—	0.5	—
Gate-Drain Charge	Q_{gd}			—	1.2	—
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=4.5V V_{DS}=50V R_G=6.8Ω I_D=1A	ns	—	2.2	—
Turn-on Rise Time	t_r			—	2.1	—
Turn-off Delay Time	$t_{D(off)}$			—	9	—
Turn-off fall Time	t_f			—	3.6	—

Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	I_S=1.6A, V_{GS}=0V	V	—	—	1.3
Maximum Body-Diode Continuous Current(3)	I_S	—	A	—	—	1.6
Body-Diode Reverse Recovery Time	T_{rr}	I_F=1.1A,dI/dt=100A/μs	ns	—	20	—
Body-Diode Reverse Recovery Charge	Q_{rr}		nC	—	13	—

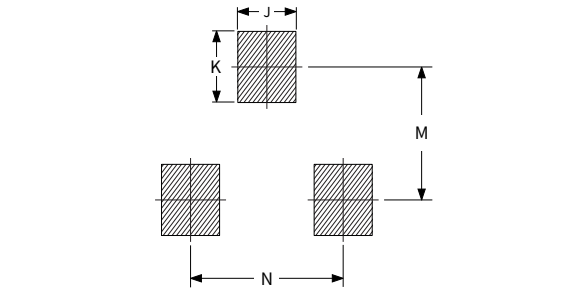
Note:(1)Surface mounted on 1 in square Cu board.
(2)Pulse with ⩽ 400μs;duty cycle ⩽ 2%.
(3)Repetitive rating;pulse with limited by max. junction temperature.

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