SOT-23 Plastic-Encapsulate MOSFETS

Features

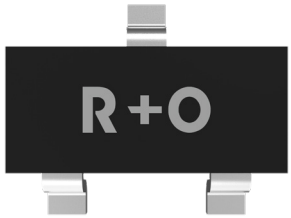
- V_{DS}= -60V
- I_D=-0.17A
- $R_{DS(on)}$@VGS=-10V ＜ 4.7Ω
- $R_{DS(on)}$@VGS=-4.5V ＜ 5.7Ω
- Advanced Trench Process Technology
- Voltage controlled small signal switch
- Fast Switching Speed

Drain-source Voltage
-60 V
Drain Current
-0.17 Ampere

Applications

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

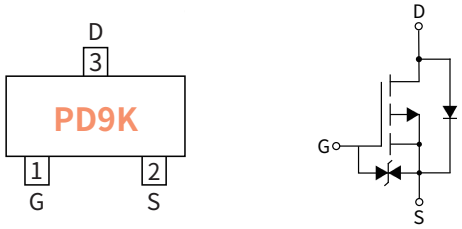
SOT-23



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	-20
Gate-source Voltage	V_{GS}	V	±20
Drain Current	I_D	A	-0.17
Pulsed Drain Current (1)	I_{DM}	A	-1.2
Total Power Dissipation (2)	P_D	W	0.225
ESD Protected Up to	ESD(HBM)	kV	2.0
Thermal Resistance Junction-to-Ambient @ Steady State (2)	$R_{\theta JA}$	°C / W	625
Junction and Storage Temperature Range	T_J,T_{STG}	°C	-55 ~+150

Note :

(1)Pulse width ≤ 100us, duty cycle ≤ 1%, limited by Tjmax.

(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= -250μA	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}= ±20V, V_{DS}=0V	μA	—	—	±10
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250μA	V	-1.1	-1.6	-2.2
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= -10V, I_D= -0.15A	Ω	—	3.6	4.7
		V_{GS}= -2.5V, I_D= -0.1A		—	4.4	5.7

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	V_{DS}=0V V_{DS}= -30V f=1MHZ	pF	—	43	—
Output Capacitance	C_{oss}			—	11	—
Reverse Transfer Capacitance	C_{rss}			—	4	—

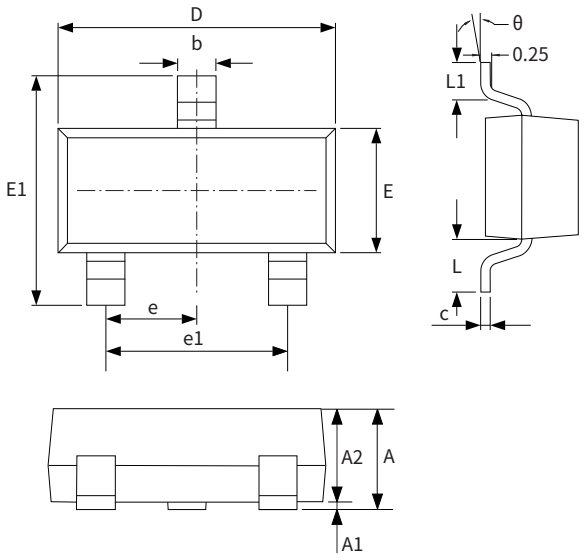
Switching Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	V_{GS}= -10V V_{DS}= -30V I_D= -0.15A	nC	—	1.7	—
Gate-Source Charge	Q_{gs}			—	0.57	—
Gate-Drain Charge	Q_{gd}			—	0.25	—
Turn-on Delay Time	$t_{D(on)}$	V_{GS}= -10V V_{DS}= -30V I_D= -0.15A R_{GEN}=3Ω	nS	—	9.0	—
Turn-on Rise Time	t_r			—	19	—
Turn-off Delay Time	$t_{D(off)}$			—	15	—
Turn-off fall Time	t_f			—	77	—

Drian-Source Diode Characteristics

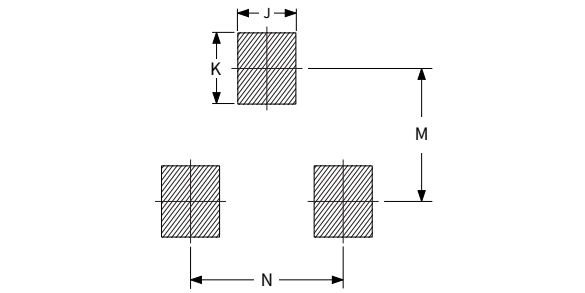
PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	I_S=-0.17A, V_{GS}=0V	V	—	—	-1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	-0.17

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