

SOT-23-3L 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
- Lead free product is acquired

Drain-source Voltage
60 V
Drain Current
5 Ampere

Applications

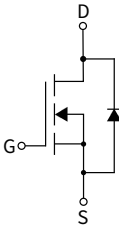
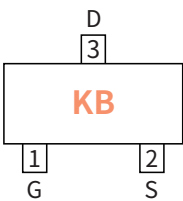
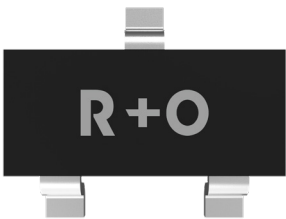
- PWM application
- Load switching
- Power management

Mechanical Data

- Case: SOT-23-3L
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram

SOT-23-3L



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23-3L	R1	0.0132	3000	30000	120000	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	$T_A=25^{\circ}C$ @ Steady State	I_D	A	5
Pulsed Drain Current ⁽¹⁾		I_{DM}	A	20
Total Power Dissipation @ $T_A=25^{\circ}C$		P_D	mW	1400
Thermal Resistance Junction-to-Ambient @ Steady State ⁽²⁾		$R_{\theta JA}$	$^{\circ}C / W$	89
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	—	33	45
		$V_{GS}=4.5V, I_D=5A$		—	40	55

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=30V$ $V_{GS}=0V$ $f=1MHz$	pF	—	979	—
Output Capacitance	C_{oss}			—	120	—
Reverse Transfer Capacitance	C_{rss}			—	100	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=10V$ $V_{DS}=30V$ $I_D=5A$	nC	—	22	—
Gate-Source Charge	Q_{gs}			—	3.3	—
Gate-Drain Charge	Q_{gd}			—	5.2	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V$ $V_{DS}=30V$ $R_G=3\Omega$ $I_D=5A$	ns	—	5.2	—
Turn-on Rise Time	t_r			—	3	—
Turn-off Delay Time	$t_{D(off)}$			—	17	—
Turn-off fall Time	t_f			—	2.5	—

● 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 ⁽²⁾	I_S	—	A	—	—	5

Note:(1)Repetitive rating;pulse with limited by max. junction temperature.
(2)Surface mounted on FR-4 board,t ≤ 10 sec.
(3)Pulse with ≤ 300μs;duty cycle ≤ 0.5%.

● Package Outline Dimensions (SOT-23-3L)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.05	1.25	0.041	0.049
A1	-	0.10	-	0.004
A2	1.05	1.15	0.041	0.045
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.82	3.02	0.111	0.119
E	1.50	1.70	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.90	1.00	0.035	0.039
e1	1.80	2.00	0.071	0.079
L	0.45	0.65	0.018	0.026
L1	0.30	0.60	0.012	0.024
θ	-	8°	-	8°

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.80	-	0.031	-
K	-	0.95	-	0.037
M	2.00	-	0.078	-
N	-	2.0	-	0.079