SOT-23-3L Plastic-Encapsulate MOSFETS

Features

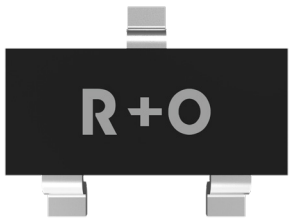
- V_{DS}=60V
- I_D=2A
- $R_{DS(on)}$@V_{GS}=10V < 180mΩ
- $R_{DS(on)}$@V_{GS}=4.5V < 230mΩ
- Advanced trench technology
- Fast Switching Speedze

Drain-source Voltage
60 V
Drain Current
2 Ampere

Applications

- PWM application
- Load switching
- Power management

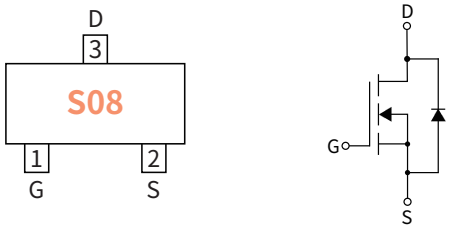
SOT-23-3L



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



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23-3L	R1	0.0132	3000	30000	300000	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°C @ Steady State	I_D	A	2
Pulsed Drain Current		I_{DM}	A	8
Total Power Dissipation @ T_A=25°C		P_D	mW	1000
Thermal Resistance Junction-to-Ambient @ Steady State		$R_{\theta JA}$	°C / W	125
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	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	nA	—	—	±100
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	V	1.1	1.5	2.3
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=1.9A	mΩ	—	140	180
		V_{GS}= 4.5V, I_D=1.5A		—	160	230

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	—	460	—
Output Capacitance	C_{oss}			—	55	—
Reverse Transfer Capacitance	C_{rss}			—	36	—

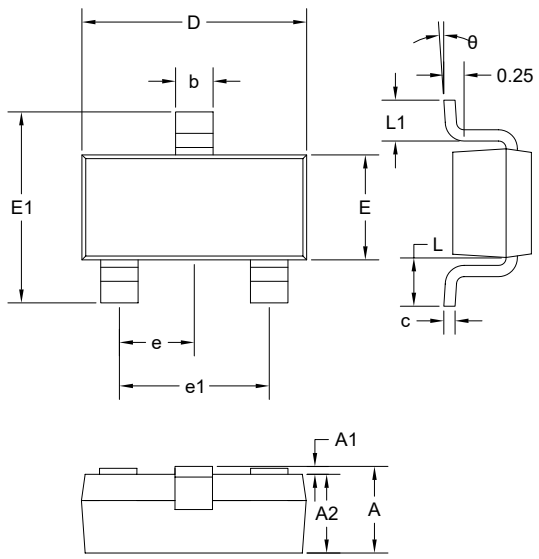
Switching Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	V_{GS}=10V V_{DS}=30V I_D=1.9A	nC	—	2	—
Gate-Source Charge	Q_{gs}			—	1	—
Gate-Drain Charge	Q_{gd}			—	1	—
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V V_{DS}=30V R_G=1Ω I_D=1.5A	ns	—	8	—
Turn-on Rise Time	t_r			—	5	—
Turn-off Delay Time	$t_{D(off)}$			—	11	—
Turn-off fall Time	t_f			—	3	—

Drian-Source Diode Characteristics

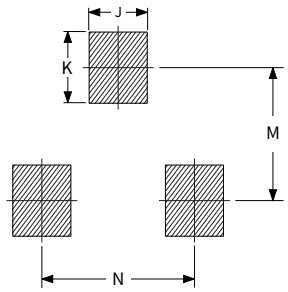
PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	I_S=2A, V_{GS}=0V	V	—	—	1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	2

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