

SOT-23-6L Plastic-Encapsulate MOSFETS

Features

- N MOS
 - $V_{DS}=20V$
 - $I_D=3.4A$
 - $R_{DS(on)}@V_{GS}=4.5V < 65m\Omega$
 - $R_{DS(on)}@V_{GS}=2.5V < 75m\Omega$
 - $R_{DS(on)}@V_{GS}=1.8V < 100m\Omega$
- P MOS
 - $V_{DS}=-20V$
 - $I_D=-2.5A$
 - $R_{DS(on)}@V_{GS}=-4.5V < 75m\Omega$
 - $R_{DS(on)}@V_{GS}=-2.5V < 95m\Omega$
 - $R_{DS(on)}@V_{GS}=-1.8V < 115m\Omega$
- Low Gate Charge and Rdson
- Fast Switching Speedze
- Improved dv/dt capability, high ruggedness

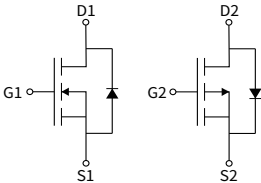
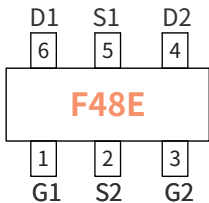
Applications

- Load Switch
- DC/DC Converter
- Power Management

Mechanical Data

- Case: SOT-23-6L
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram

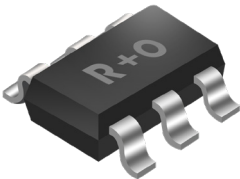


Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23-6L	R1	0.0422	3000	30000	120000	7"

Drain-source Voltage
20/-20V
Drain Current
3.4/-2.5Ampere

SOT-23-6L



● N MOS 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	± 8
Drain Current	I_D	A	3.4
Pulsed Drain Current	I_{DM}	A	13
Total Power Dissipation	P_D	W	1.1
Junction temperature	T_J	°C	-55 ~ +150
Storage temperature	T_{stg}	°C	-55 ~ +150
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	°C / W	110
Thermal Resistance Junction-to-Lead	$R_{\theta JL}$	°C / W	80

● N MOS Static Parameter Characteristics (Tj=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	20	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	μA	—	—	1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.4	0.7	1.0
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3.4A$	m Ω	—	51	65
		$V_{GS}=2.5V, I_D=3A$		—	58	75
		$V_{GS}=1.8V, I_D=2A$		—	68	100

● N MOS Dynamic Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$	pF	—	534	—
Output Capacitance	C_{oss}			—	248	—
Reverse Transfer Capacitance	C_{rss}			—	213	—

● N MOS Switching Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=5V, V_{DD}=10V, I_D=3.4A, R_{GEN}=3\Omega$	nS	—	2.5	—
Turn-on Rise Time	t_r		nS	—	3.2	—
Turn-off Delay Time	$t_{D(off)}$		nS	—	21	—
Turn-off fall Time	t_f		nS	—	3	—
Total Gate Charge	Q_g	$V_{DS}=10V, I_D=3.4A, V_{GS}=4.5V$	nC	—	2.9	—
Gate-Source Charge	Q_{gs}		nC	—	0.4	—
Gate-Drain Charge	Q_{gd}		nC	—	0.6	—

● N MOS Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	$I_S=3.4A, V_{GS}=0V$	V	—	—	1.0
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	3.4
Body-Diode Reverse Recovery Time	T_{rr}	$I_F=3.4A, di/dt=100A/\mu s$	ns	—	14	—
Body-Diode Reverse Recovery Charge	Q_{rr}		nC	—	3.8	—

● P MOS 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	± 8
Drain Current	I_D	A	-2.5
Pulsed Drain Current	I_{DM}	A	-13
Total Power Dissipation	P_D	W	1.1
Junction temperature	T_J	°C	-55 ~+150
Storage temperature	T_{stg}	°C	-55 ~+150
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	°C / W	110
Thermal Resistance Junction-to-Lead	$R_{\theta JL}$	°C / W	80

● P MOS Static Parameter Characteristics (Tj=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	-20	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$	μA	—	—	-1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	V	-0.4	-0.7	-1.0
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-2.5A$	m Ω	—	67	75
		$V_{GS}=-2.5V, I_D=-2A$		—	82	95
		$V_{GS}=-1.8V, I_D=-1A$		—	107	115

● P MOS Dynamic Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$	pF	—	782	—
Output Capacitance	C_{oss}			—	377	—
Reverse Transfer Capacitance	C_{rss}			—	336	—

● P MOS Switching Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=-4.5V, V_{DD}=-10V, I_D=-2.5A, R_{GEN}=6\Omega$	nS	—	7.2	—
Turn-on Rise Time	t_r		nS	—	36	—
Turn-off Delay Time	$t_{D(off)}$		nS	—	53	—
Turn-off fall Time	t_f		nS	—	56	—
Total Gate Charge	Q_g	$V_{DS}=-10V, I_D=-2.5A, V_{GS}=-4.5V$	nC	—	8.5	—
Gate-Source Charge	Q_{gs}		nC	—	1.2	—
Gate-Drain Charge	Q_{gd}		nC	—	2.1	—

● P MOS Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	$I_S=-2.5A, V_{GS}=0V$	V	—	—	-1.0
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	-2.5
Body-Diode Reverse Recovery Time	T_{rr}	$I_F=-2.5A, dI/dt=100A/\mu s$	ns	—	37	—
Body-Diode Reverse Recovery Charge	Q_{rr}		nC	—	27	—

● Package Outline Dimensions (SOT-23-6L)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.10	0.110	0.122
B	2.65	3.00	0.104	0.118
C	0.85	1.05	0.033	0.041
D	0.30	0.50	0.012	0.020
E	1.50	1.80	0.059	0.070
F	0.10	0.20	0.004	0.008
G	-	0.10	-	0.004
H	0.30	0.60	0.012	0.024
J	1.05	1.25	0.041	0.049

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.65	0.75	0.026	0.03
K	0.95	1.05	0.038	0.043
M	-	1.40	-	0.055
N	-	0.35	-	0.014
X	-	0.95	-	0.037
Y	-	2.30	-	0.090
L	-	2.50	-	0.098