

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=60V$
- $I_D=3.0A$
- $R_{DS(on)}@V_{GS}=10V < 105m\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 125m\Omega$
- Trench Power LV MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching

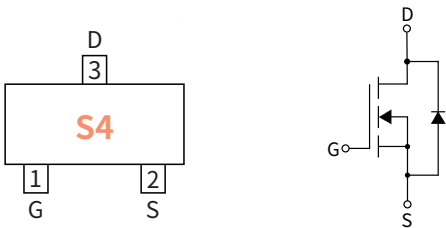
Applications

- Battery protection
- Load switch
- Power management

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



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

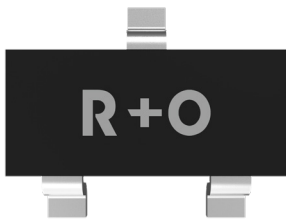
PARAMETER		SYMBOL	UNIT	VALUE
Drain-source Voltage		V_{DS}	V	60
Gate-source Voltage		V_{GS}	V	± 20
Drain Current	Ta=25°C	I_D	A	3.0
	Ta=100°C			2.4
Pulsed Drain Current		I_{DM}	A	10
Total Power Dissipation	Ta=25°C	P_D	W	1.2
	Ta=100°C			0.8
Storage temperature	T_{stg}	°C	—	-55 ~+150
Junction temperature	T_j	°C	—	-55 ~+150
Thermal Resistance Junction-to-Ambient		$R_{\theta JA}$	°C /W	104

Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	45000	180000	7"

Drain-source Voltage
60 V
Drain Current
3.0 Ampere

SOT-23



● 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
		$V_{GS}=0V, V_{DS}=20V, T_J=150^\circ C$		—	—	100
Gate-Body Leakage Current	I_{GSS1}	$V_{GS}=\pm 20V, V_{DS}=0V$	nA	—	—	± 100
	I_{GSS2}	$V_{GS}=\pm 10V, V_{DS}=0V$	nA	—	—	± 50
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.9	—	2.0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=3A$	m Ω	—	90	105
		$V_{GS}=4.5V, I_D=2A$		—	92	125
Diode Forward Voltage	V_{SD}	$I_S=3.0A, V_{GS}=0V$	V	—	0.9	1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	3.0

● 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	—	247	—
Output Capacitance	C_{oss}			—	34	—
Reverse Transfer Capacitance	C_{rss}			—	19.5	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=4.5V, V_{DS}=30V, I_D=3.0A$	nC	—	6	—
Gate-Source Charge	Q_{gs}			—	1	—
Gate-Drain Charge	Q_{gd}			—	1.3	—
Reverse Recovery Charge	Q_{rr}	$I_F=3.0A, di/dt=100A/\mu s$	nC	—	6.99	—
Reverse Recovery Time	t_{rr}		ns	—	32.6	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DS}=30V, I_D=3.0A$ $R_{GEN}=6\Omega$	ns	—	6	—
Turn-on Rise Time	t_r			—	15	—
Turn-off Delay Time	$t_{D(off)}$			—	15	—
Turn-off fall Time	t_f			—	10	—

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

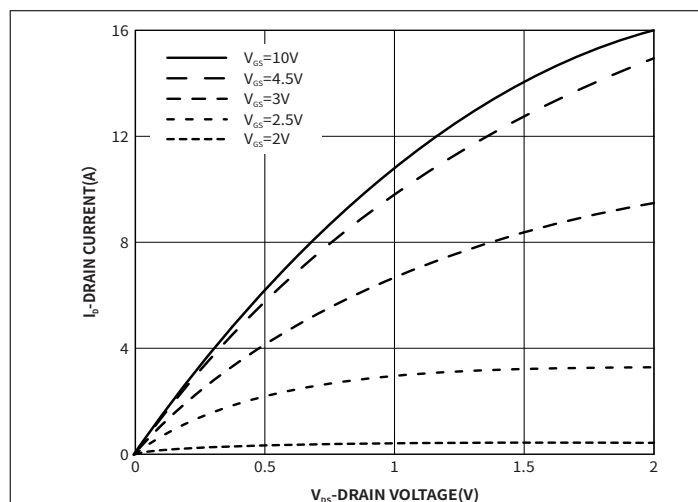


Fig.1 Output Characteristics

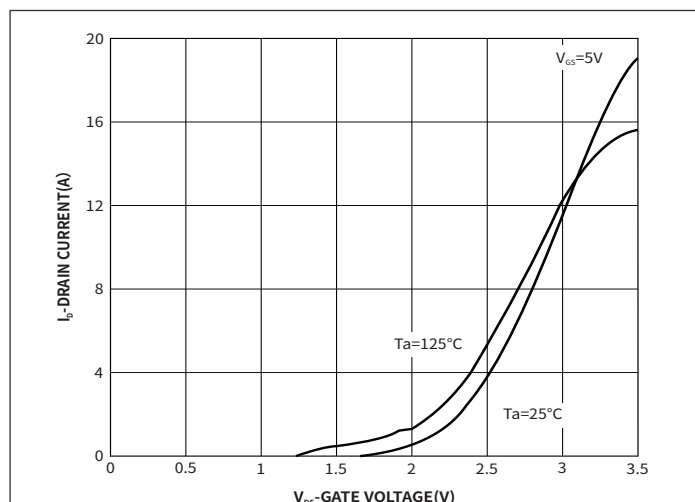


Fig.2 Transfer Characteristics

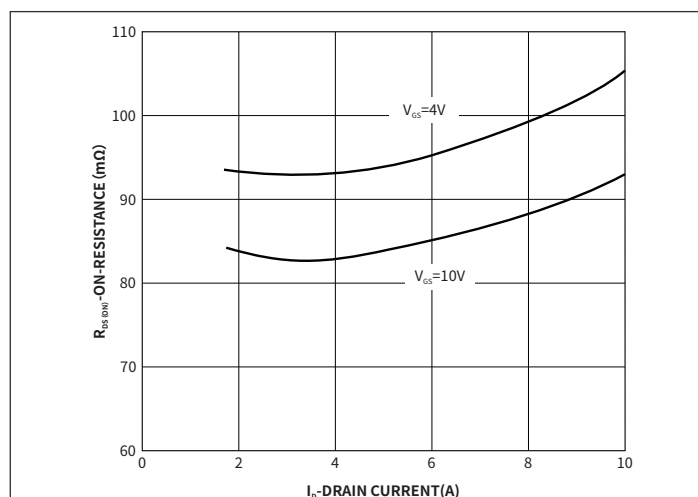


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

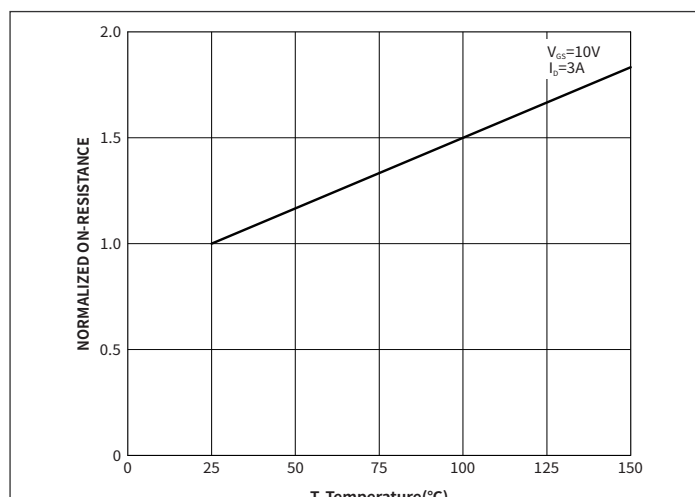


Fig.4 On-Resistance vs. Junction Temperature

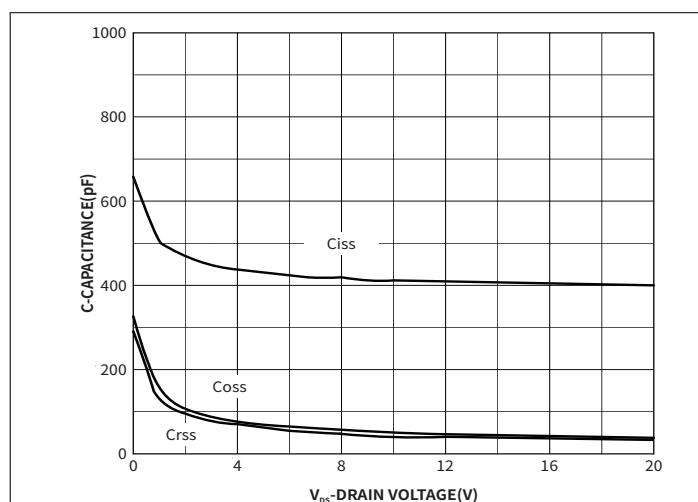


Fig.5 Capacitance Characteristics

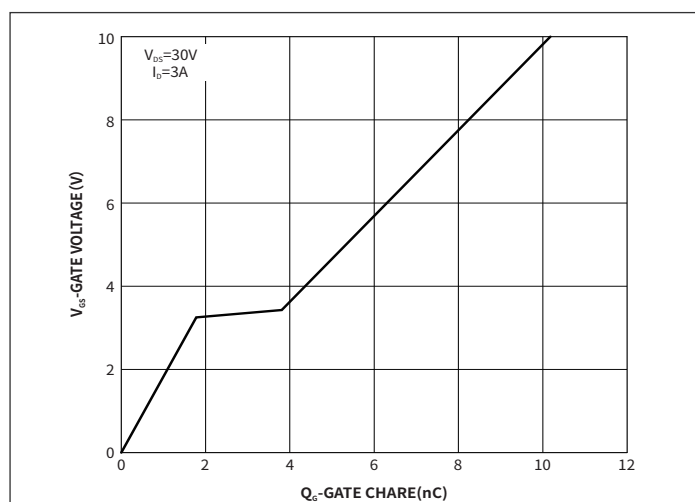
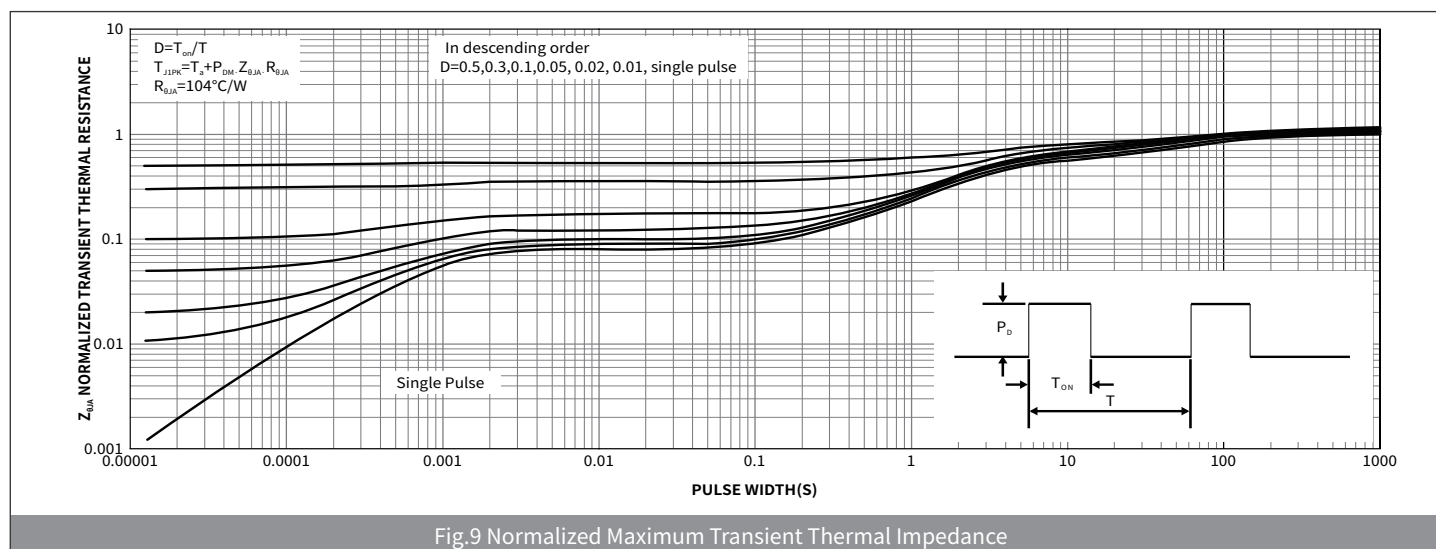
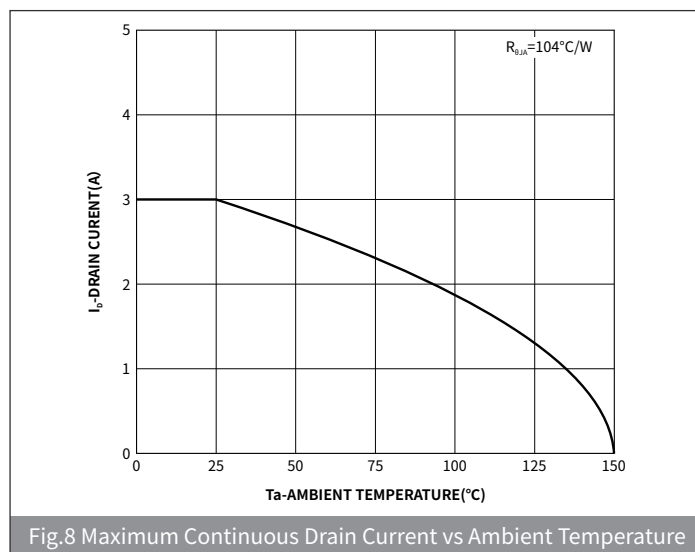
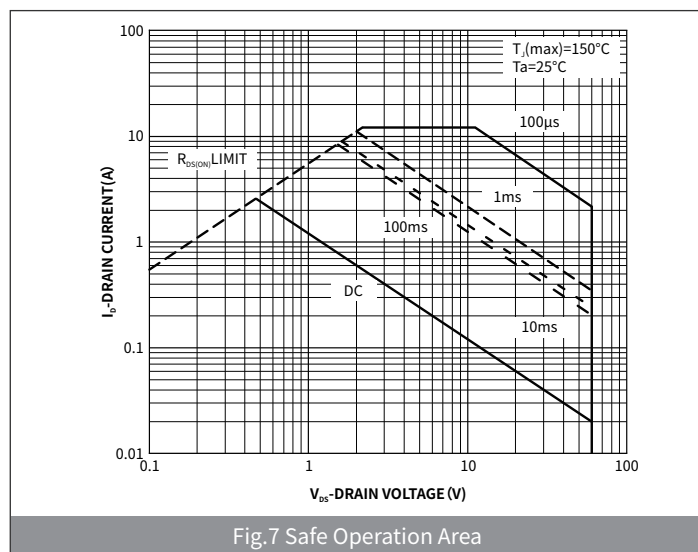
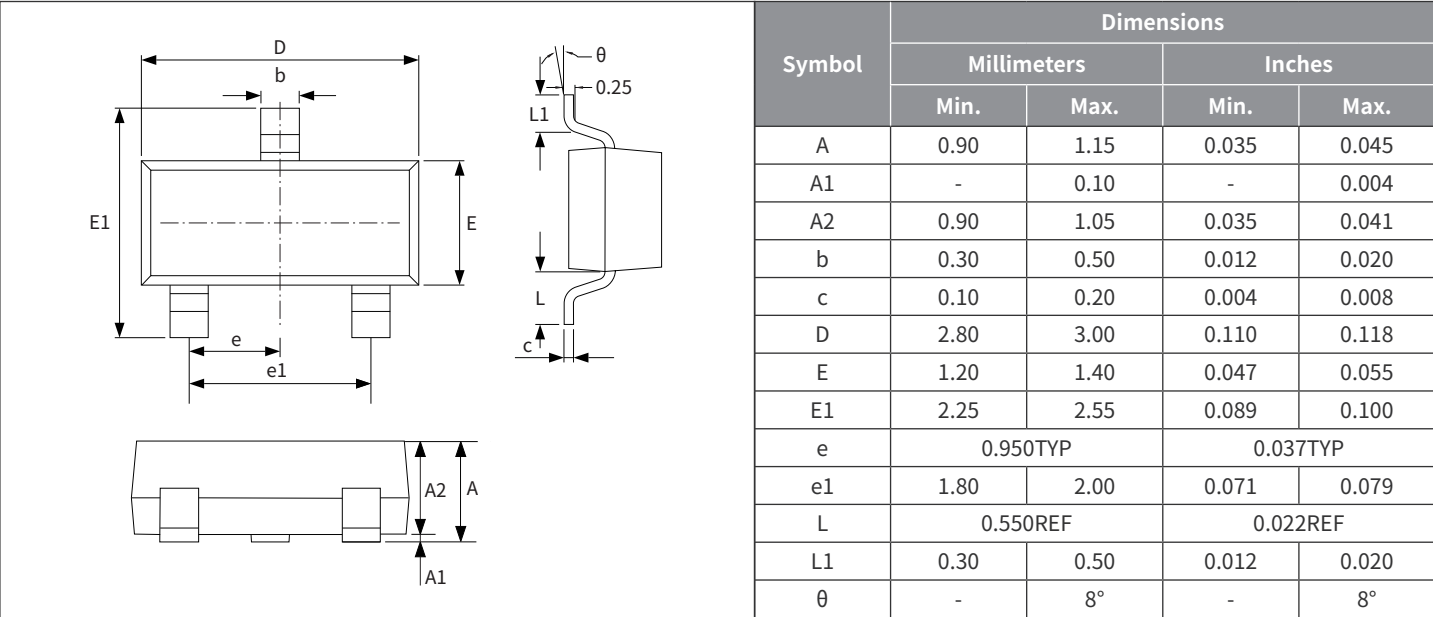


Fig.6 Gate Charge

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Package Outline Dimensions (SOT-23)



● Suggested Pad Layout

