

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=-30V$
- $I_D=-4.1A$
- $R_{DS(on)}@V_{GS}=-10V < 55m\Omega$
- $R_{DS(on)}@V_{GS}=-4.5V < 68m\Omega$
- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Fast Switching Speed

Applications

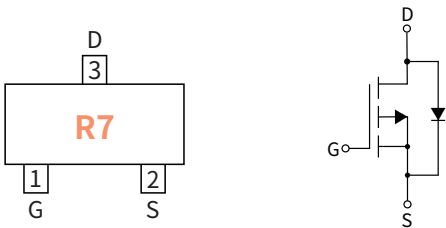
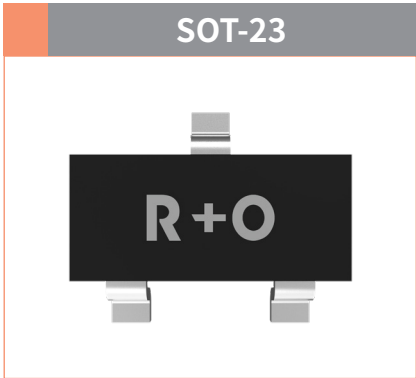
- Battery operated systems
- Solid-state relays
- Direct logic-level interface: TTL/CMOS

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

Reference News

Drain-source Voltage
-30 V
Drain Current
-4.1 Ampere



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

PARAMETER		SYMBOL	UNIT	VALUE
Drain-source Voltage		V_{DS}	V	-30
Gate-source Voltage		V_{GS}	V	± 20
Drain Current	$T_A=25^{\circ}C$ @ Steady State	I_D	A	-4.1
Pulsed Drain Current ⁽¹⁾		I_{DM}	A	-15
Total Power Dissipation @ $T_A=25^{\circ}C$		P_D	W	1.2
Thermal Resistance Junction-to-Ambient @ Steady State ⁽²⁾		$R_{\theta JA}$	$^{\circ}C / W$	105
Junction and Storage Temperature Range		T_J, T_{STG}	$^{\circ}C$	-55 ~+150

Note :
(1)Pulse test ; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
(2)Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

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"

● 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	-30	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V$	μA	—	—	-1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	V	-1.0	-1.5	-2.4
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.1A$	m Ω	—	40	55
		$V_{GS}=-4.5V, I_D=-3.5A$		—	53	68
Forward Transconductance	g_{fs}	$V_{DS}=-5.0V, I_D=-4.0A$	S	5.5	8.2	—
Diode Forward Voltage	V_{SD}	$I_S=-4.1A, V_{GS}=0V$	V	—	—	-1.2

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=0V$ $V_{GS}=-15V$ $f=1MHz$	pF	—	572	—
Output Capacitance	C_{oss}			—	82	—
Reverse Transfer Capacitance	C_{rss}			—	70	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-4.1A$	nC	—	12	—
Gate-Source Charge	Q_{gs}			—	2.0	—
Gate-Drain Charge	Q_{gd}			—	2.0	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-1.0A$ $R_{GEN}=2.5\Omega$	ns	—	4.0	—
Turn-on Rise Time	t_r			—	18	—
Turn-off Delay Time	$t_{D(off)}$			—	18	—
Turn-off fall Time	t_f			—	22	—

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

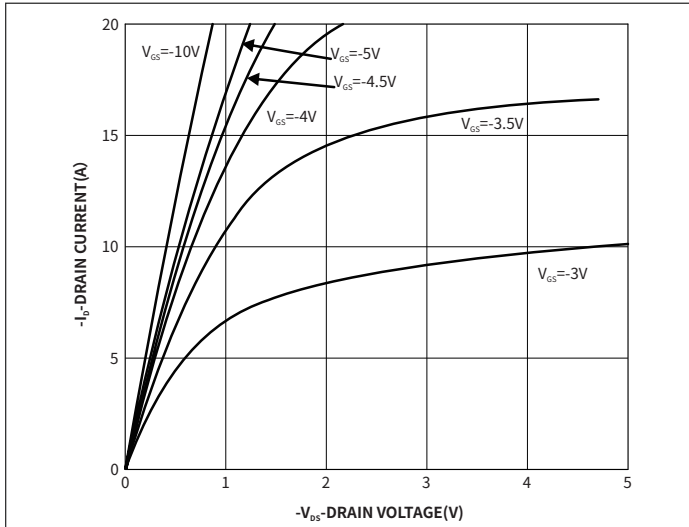


Fig.1 Output Characteristics

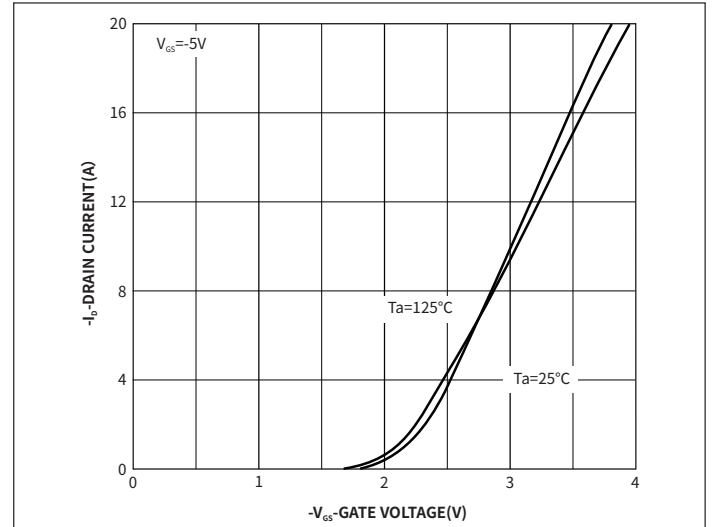


Fig.2 Transfer Characteristics

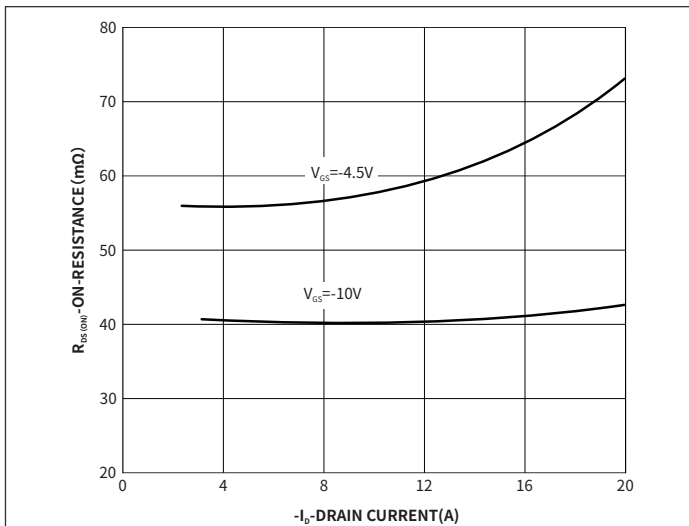


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

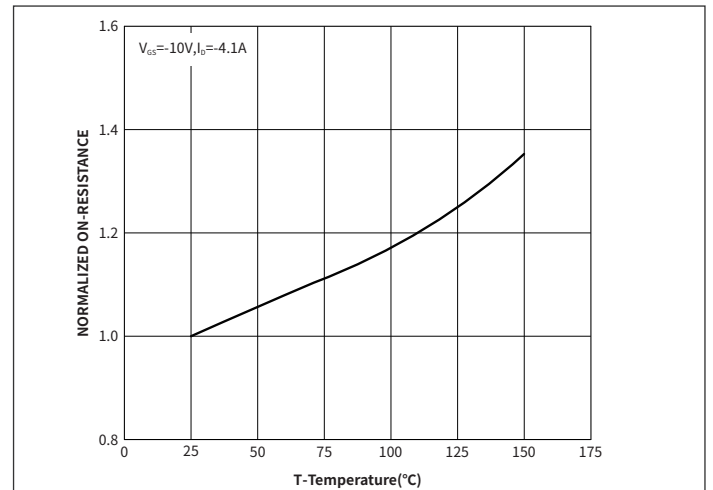


Fig.4 On-Resistance vs. Junction Temperature

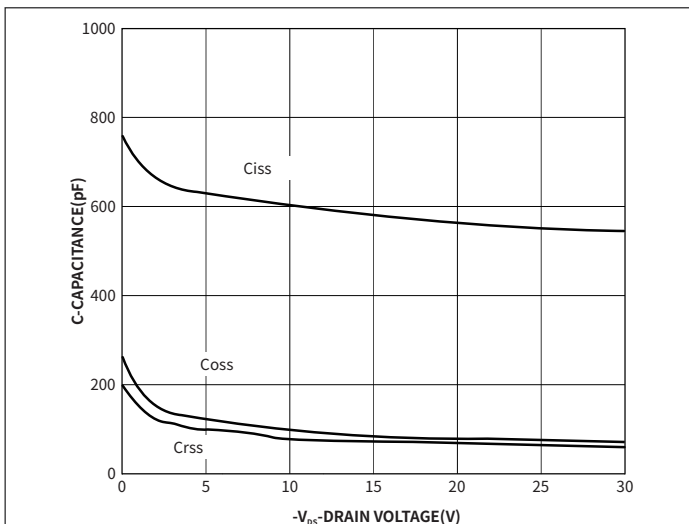


Fig.5 Capacitance Characteristics

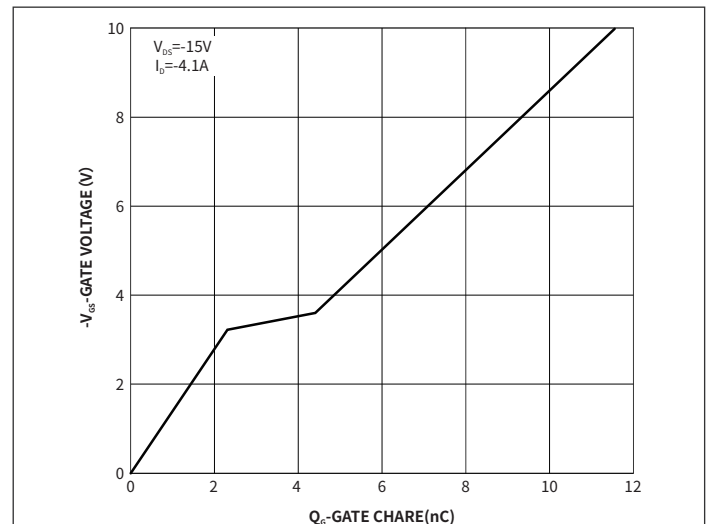
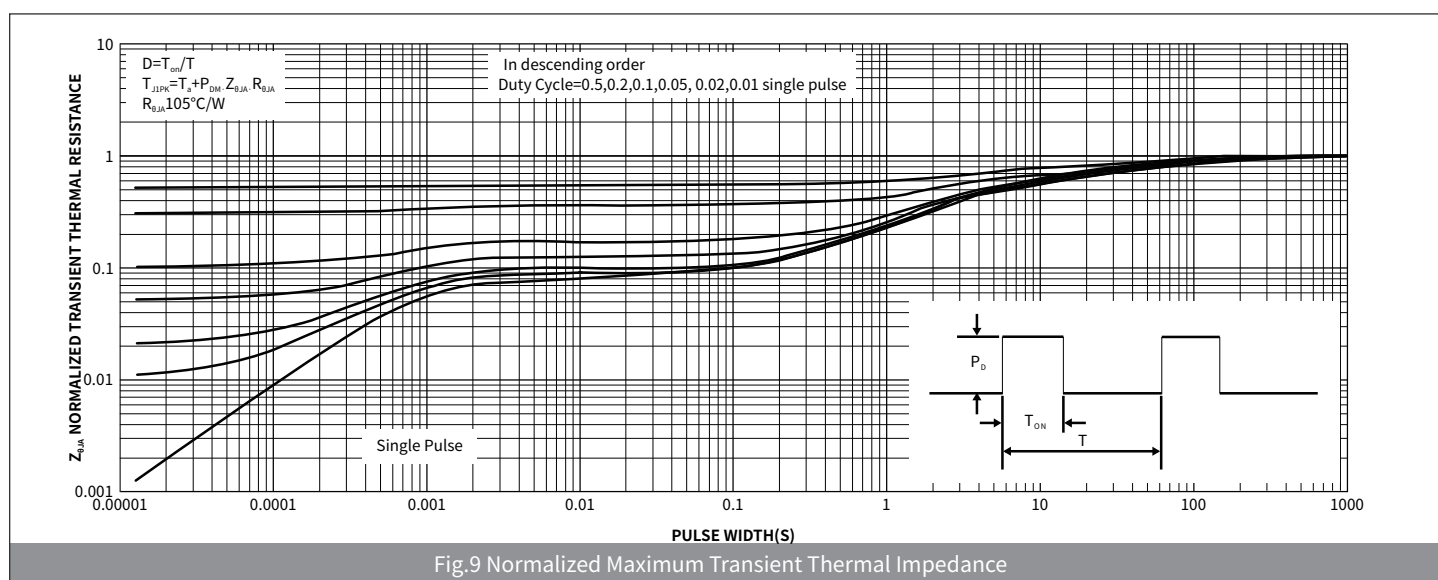
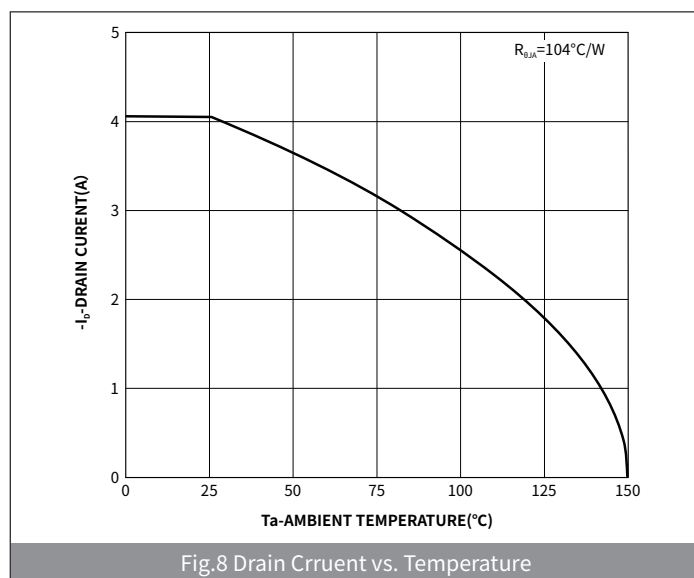
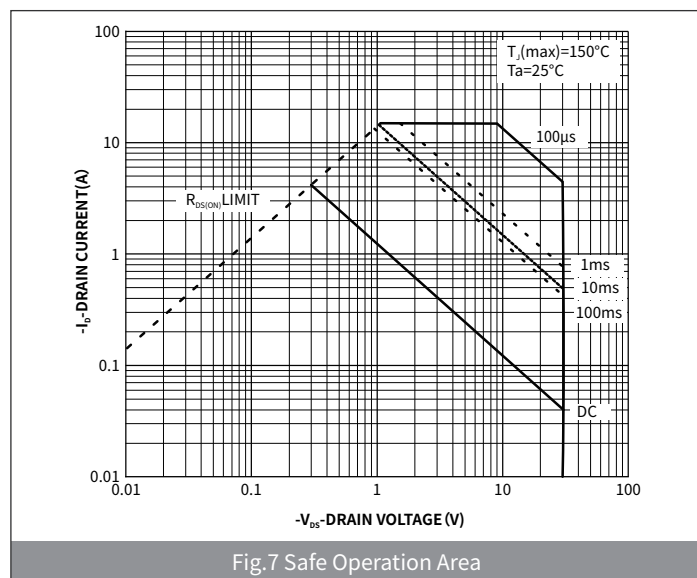
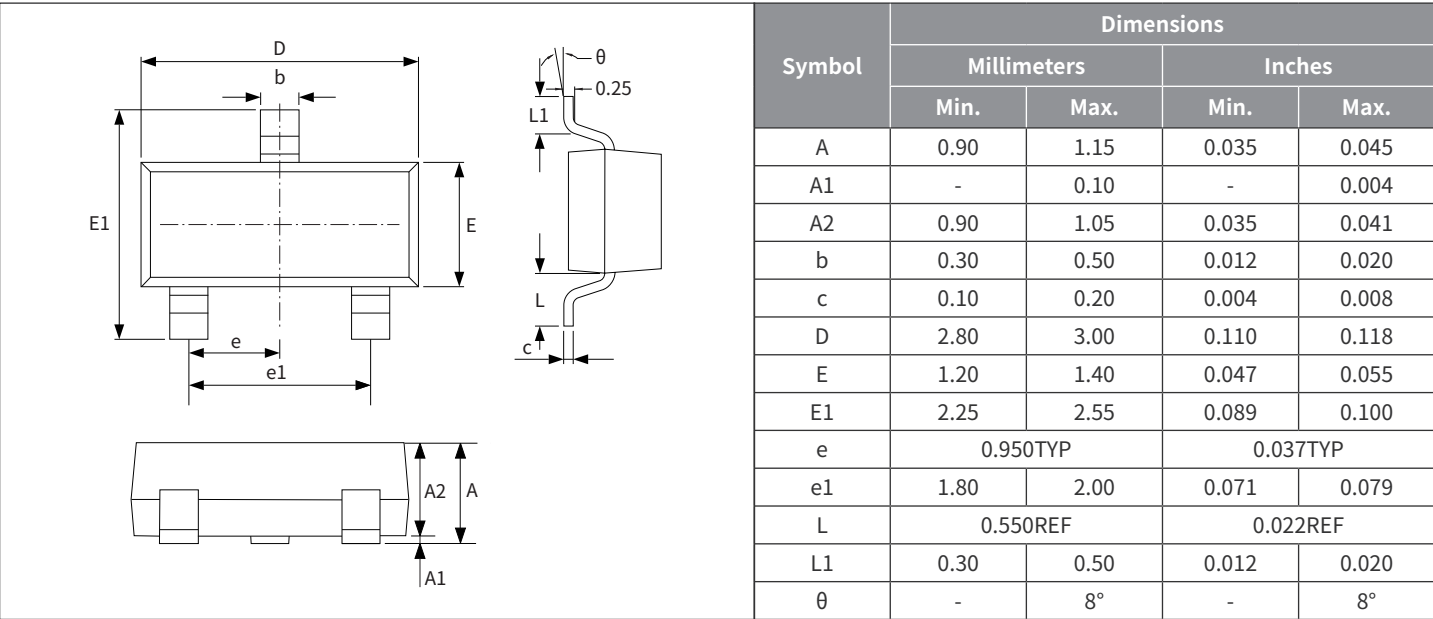


Fig.6 Gate Charge

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



● Package Outline Dimensions (SOT-23)



● Suggested Pad Layout

