

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=25V$
- $I_D=0.22A$
- $R_{DS(on)}@V_{GS}=4.5V < 4.0\Omega$
- $R_{DS(on)}@V_{GS}=2.7V < 5.0\Omega$
- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Fast Switching Speed

Drain-source Voltage

25 V

Drain Current

0.22 Ampere

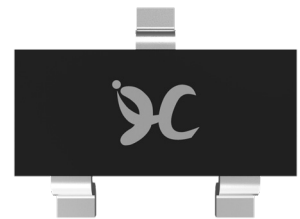
Applications

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

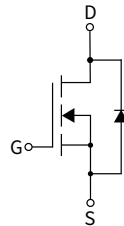
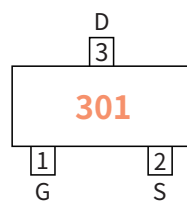
Mechanical Data

- 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

SOT-23



Reference News



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

PARAMETER	SYMBOL	UNIT	VALUE
Drain-source Voltage	V_{DS}	V	25
Gate-source Voltage	V_{GS}	V	± 8.0
Drain Current	I_D	A	0.22
Pulsed Drain Current	I_{DM}	A	0.5
Total Power Dissipation @ $T_A=25^\circ C$	P_D	W	0.35
Electrostatic Discharge Rating MIL-STD-883D Human Body Model (100pf/1500 Ohm)	ESD	KV	6.0
Thermal Resistance Junction-to-Ambient @ Steady State	$R_{\theta JA}$	$^\circ C / W$	357
Junction and Storage Temperature Range	T_J, T_{STG}	$^\circ C$	-55 ~ +150

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	25	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	μA	—	—	1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 8.0V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.65	0.8	1.5
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.4A$	Ω	—	—	4.0
		$V_{GS}=2.7V, I_D=0.2A$		—	—	5.0
Forward Transconductance	g_{fs}	$V_{DS}=5.0V, I_D=0.4A$	S	—	0.2	—
Diode Forward Voltage	V_{SD}	$I_S=0.29A, V_{GS}=0V$	V	—	—	1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	0.29

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=10V$ $V_{GS}=0V$ $f=1MHz$	pF	—	9.5	—
Output Capacitance	C_{oss}			—	6.0	—
Reverse Transfer Capacitance	C_{rss}			—	1.3	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=4.5V$ $V_{DS}=5.0V$ $I_D=0.2A$	nC	—	0.49	0.7
Gate-Source Charge	Q_{gs}			—	0.22	—
Gate-Drain Charge	Q_{gd}			—	0.07	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V$ $V_{DD}=6.0V$ $I_D=0.5A$ $R_{GEN}=50\Omega$	ns	—	3.2	8.0
Turn-on Rise Time	t_r			—	6.0	15
Turn-off Delay Time	$t_{D(off)}$			—	3.5	8.0
Turn-off fall Time	t_f			—	3.5	8.0

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

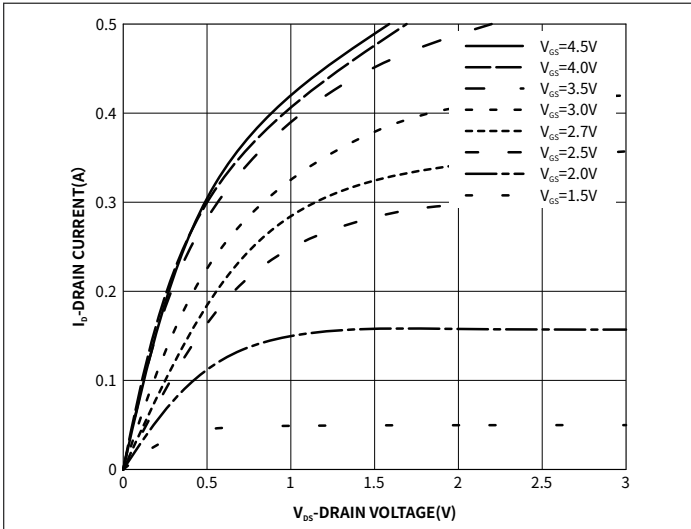


Fig.1 Output Characteristics

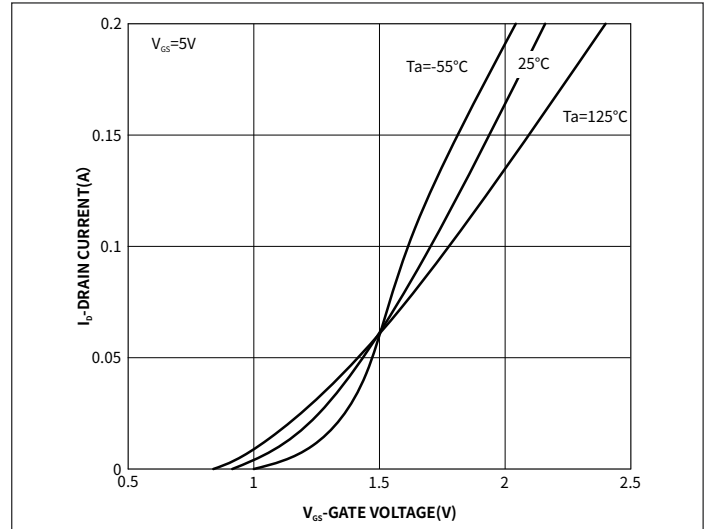


Fig.2 Transfer Characteristics

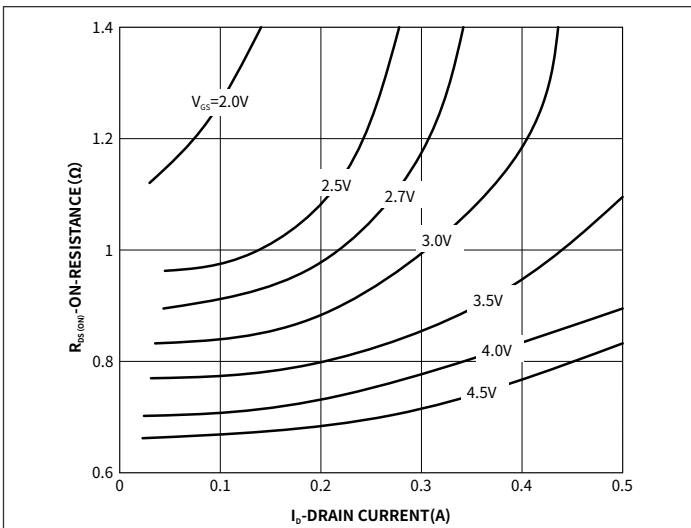


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

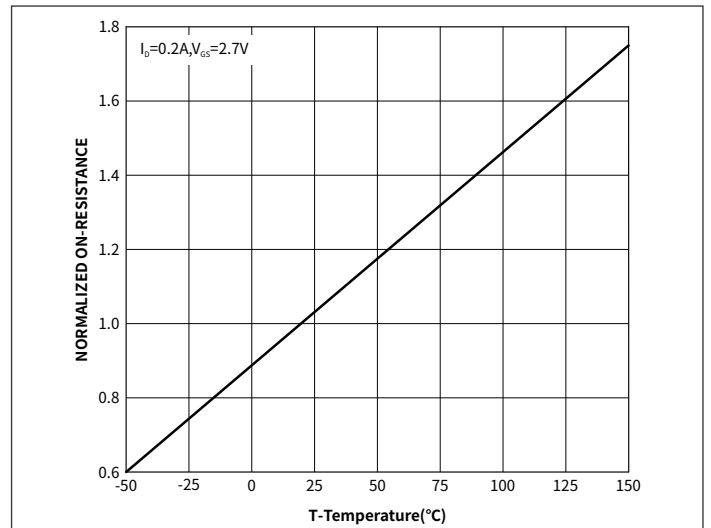


Fig.4 On-Resistance vs. Junction Temperature

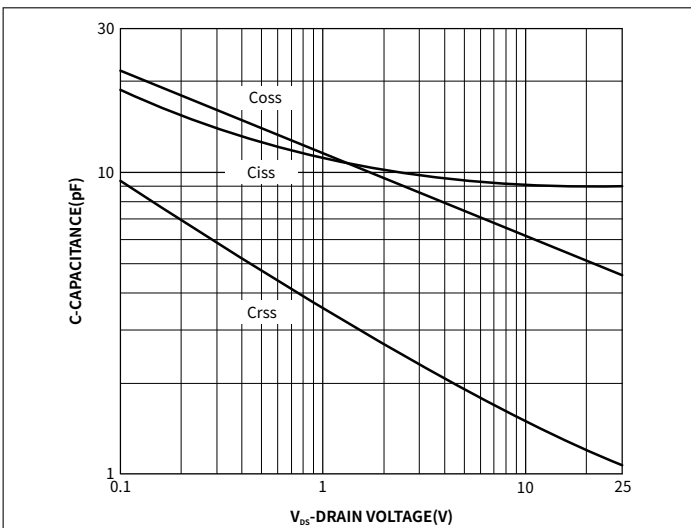


Fig.5 Capacitance Characteristics

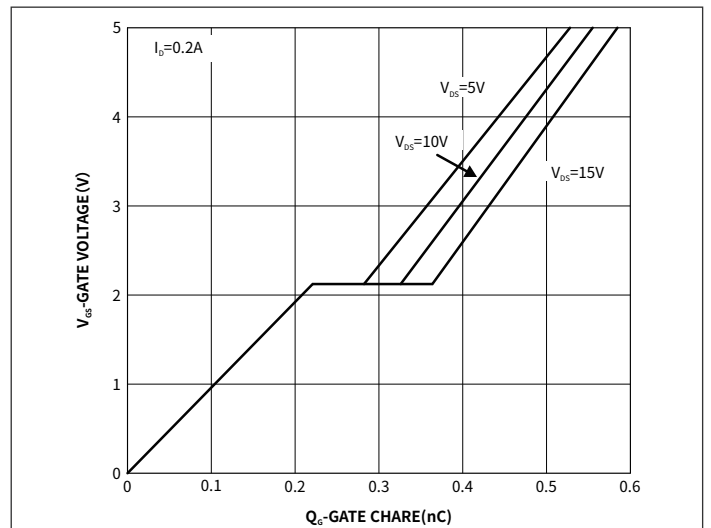
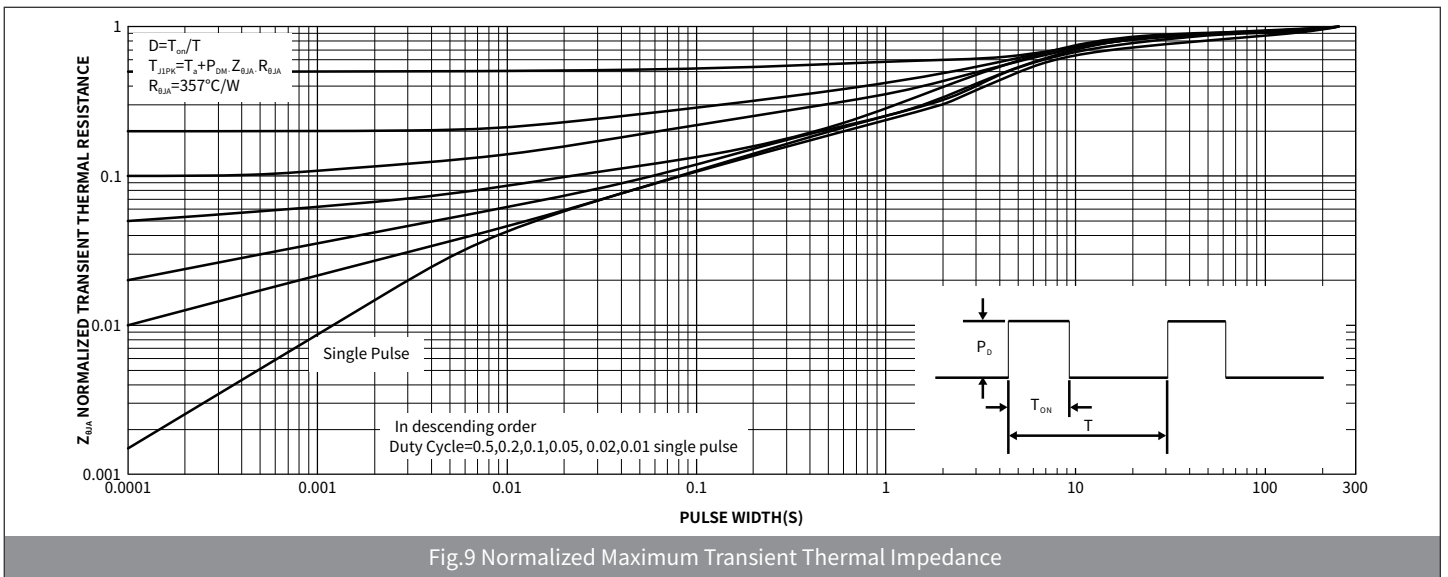
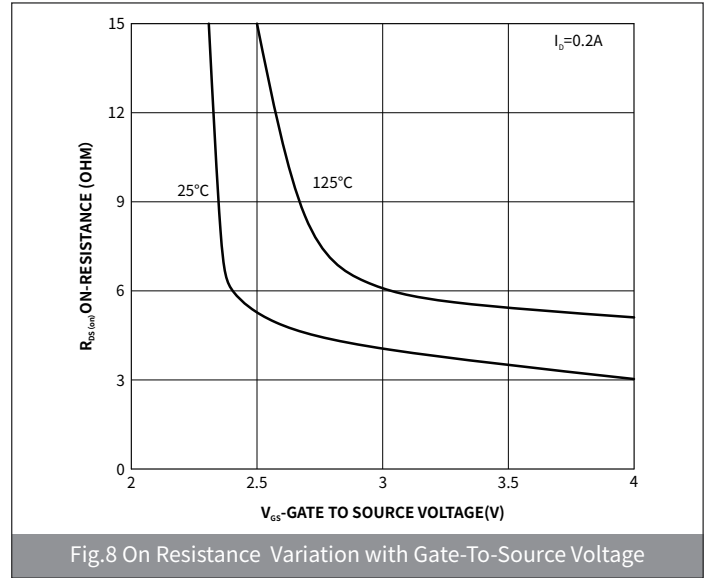
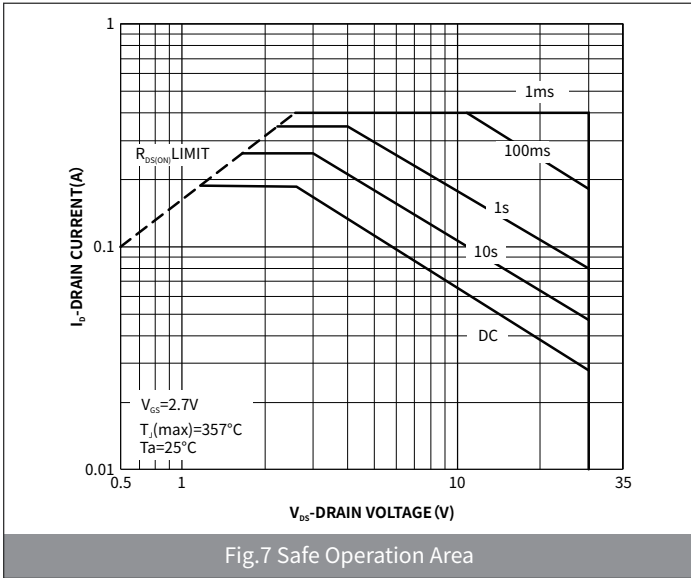


Fig.6 Gate Charge

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



● Package Outline Dimensions (SOT-23)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077