SOT-323 Plastic-Encapsulate MOSFETS

Features

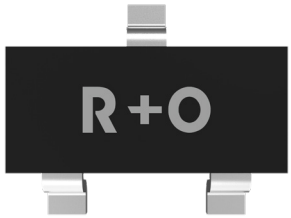
- V_{DS}=60V
- I_D=115mA
- $R_{DS(on)}$@V_{GS}=10V ＜ 5.0Ω
- $R_{DS(on)}$@V_{GS}=5.0V ＜ 7.0Ω
- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Fast Switching Speed

Drain-source Voltage
60 V
Drain Current
0.115 Ampere

Applications

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

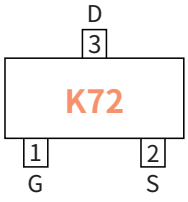
SOT-323

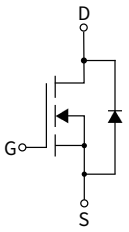


Mechanical Data

- Case: SOT-323
  Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Reference News





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	I_D	mA	115
Pulsed Drain Current (1)	I_{DM}	mA	800
Total Power Dissipation @ T_A=25°C	P_D	mW	200
Thermal Resistance Junction-to-Ambient @ Steady State (2)	$R_{\theta JA}$	°C / W	357
Junction and Storage Temperature Range	T_J,T_{STG}	°C	-55 ~+150

Note :

(1)Pulse test ; Pulse width ≤ 300us, duty cycle ≤ 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-323	R1	0.005	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=250μA	V	60	—	—
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	nA	—	—	80
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V	nA	—	—	±100
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	V	1.0	1.6	2.5
On-state Drain Current	$I_{D(ON)}$	V_{GS}= 10V, V_{DS}=7V	mA	500	—	—
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=500mA	Ω	—	0.9	5.0
		V_{GS}= 5V, I_D=50mA		—	1.1	7.0
Drain-source On-voltage	$V_{DS(ON)}$	V_{GS}=10V, I_D=500mA	V	—	—	3.75
		V_{GS}=5V, I_D=50mA		—	—	0.375
Diode Forward Voltage	V_{SD}	I_S=115mA, V_{GS}=0V	V	0.55	—	1.2
Forward Transconductance	gfs	V_{DS}=10 V, I_D=115mA	ms	80	—	—

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHZ	pF	—	—	50
Output Capacitance	C_{oss}			—	—	25
Reverse Transfer Capacitance	C_{rss}			—	—	5.0

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

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	V_{DD}=25V, R_L=50Ω, V_{GEN}=10V, I_D=500mA R_{GEN}=25Ω ,	ns	—	—	20
Turn-off Delay Time	$t_{D(off)}$			—	—	40

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

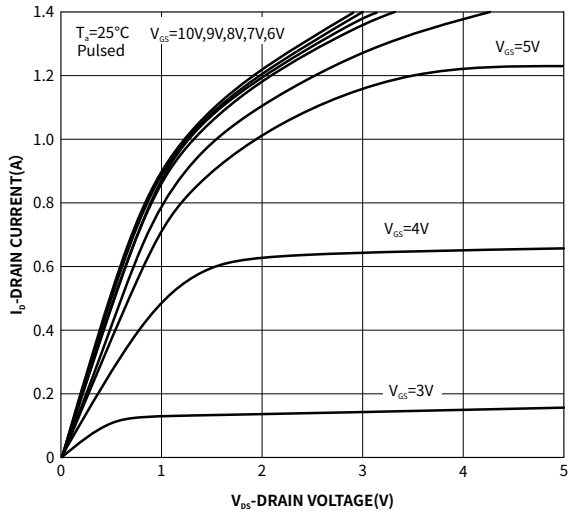


Fig.1 Output Characteristics

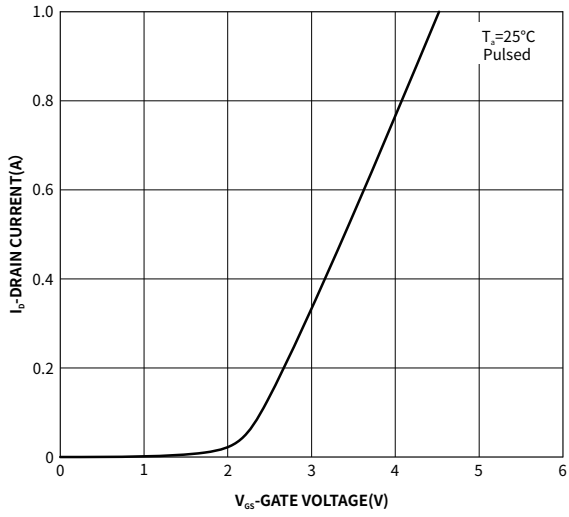


Fig.2 Transfer Characteristics

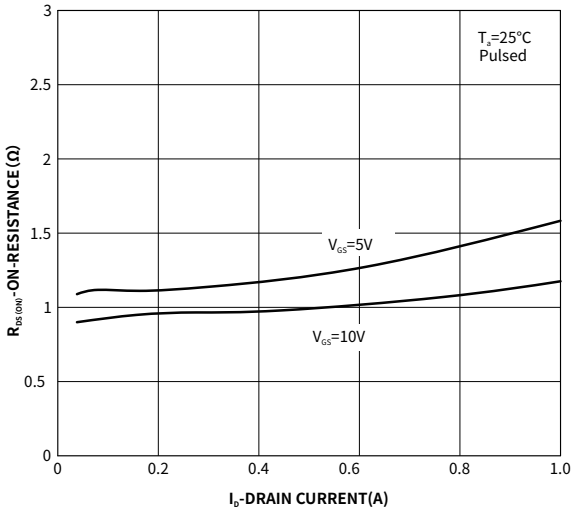


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

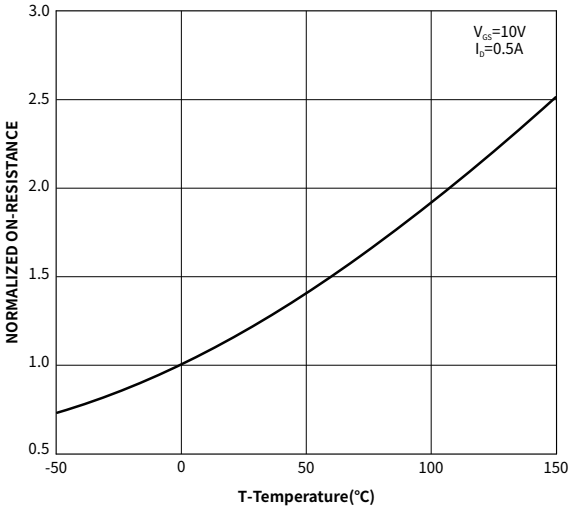


Fig.4 Normalized On-Resistance

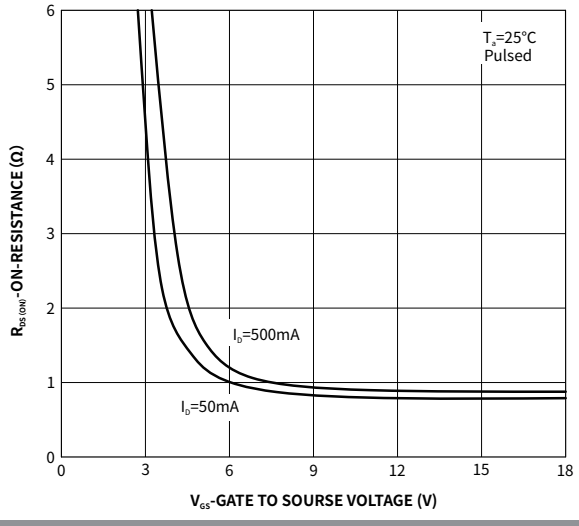


Fig.5 On-Resistance vs Gate to Source Voltage

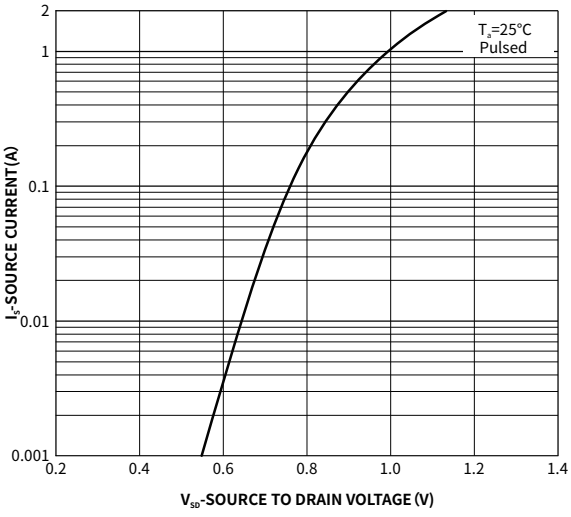


Fig.6 Source Current vs. Source and Drain Voltage

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

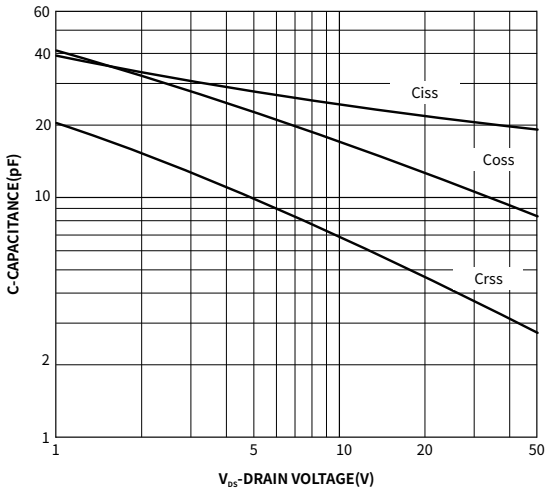


Fig.7 Capacitance Characteristics

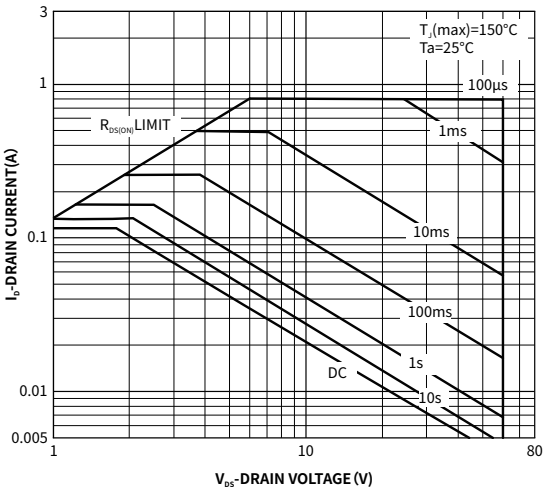


Fig.8 Safe Operation Area

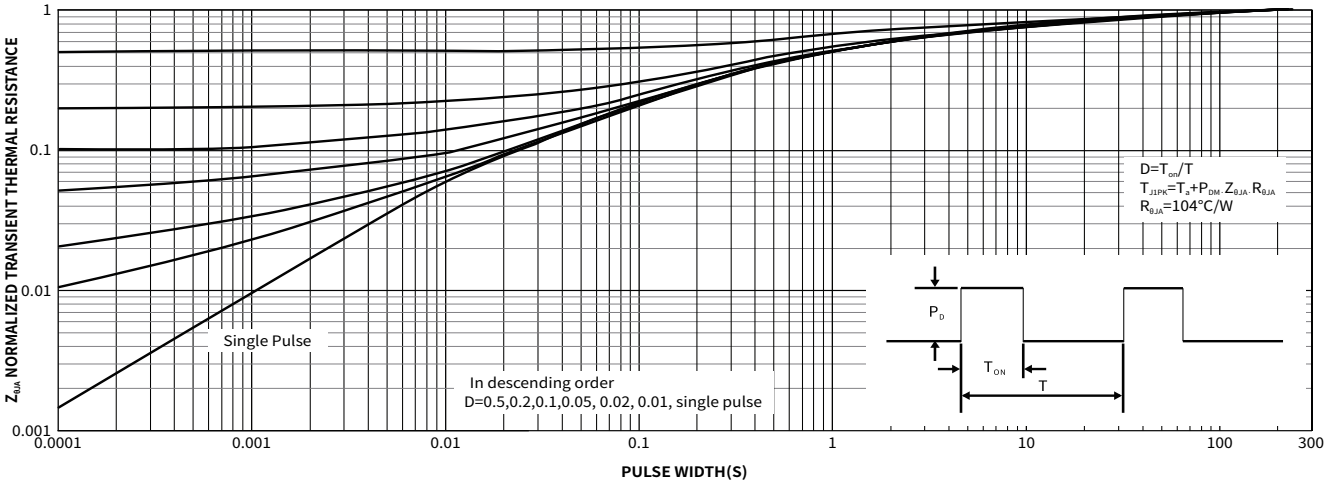
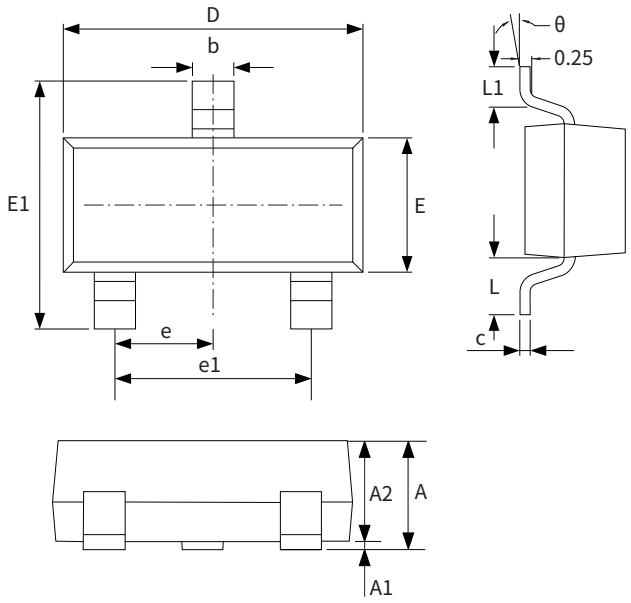


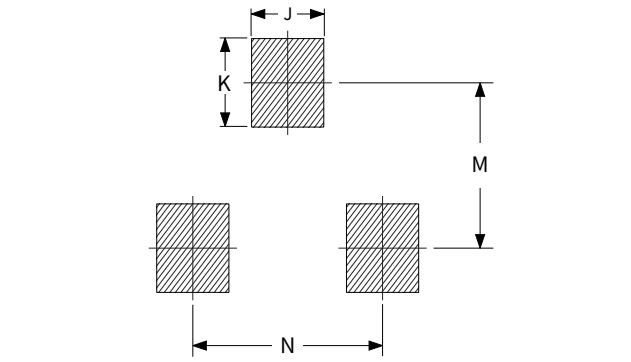
Fig.9 Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions (SOT-323)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.043
A1	-	0.10	-	0.004
A2	0.90	1.00	0.035	0.039
b	0.15	0.40	0.012	0.020
c	0.10	0.25	0.004	0.010
D	1.80	2.20	0.071	0.087
E	1.15	1.35	0.045	0.053
E1	2.15	2.45	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.20	1.40	0.047	0.055
L	0.525REF		0.021REF	
L1	0.26	0.46	0.010	0.018
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.65	0.75	0.026	0.030
K	0.85	0.95	0.033	0.037
M	1.85	1.95	0.073	0.077
N	1.25	1.35	0.049	0.053