

Descriptions

This 60V 0.34A N-channel enhancement mode mosfet in a SOT-523 plastic package.

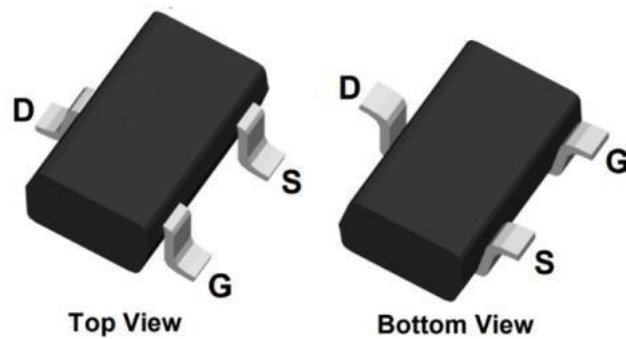
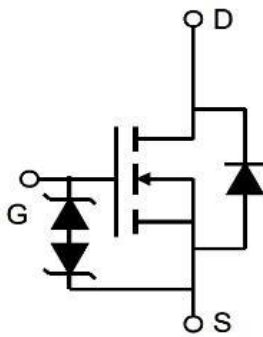
Features

- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Halogen-Free & Lead-Free
- ESD Protected up to 2KV (HBM)

Application

- Load Switch for Portable Devices
- Voltage controlled small signal switch

Schematic & PIN Configuration



Marking

See Marking Instructions

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	0.34	A
Peak Drain Current, Pulsed ¹⁾	I _{DM}	1.2	A
Power Dissipation	P _{tot}	0.15	W
Operating Junction	T _J	-55~150	°C
Storage Temperature Range	T _{stg}	-55~150	°C

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient ¹⁾	R _{θJA}	833	°C/W

Note: 1) Device mounted on FR-4 substrate PC board, 2ozcopper, with 1-inch square copper plate in still air.

Characteristics(Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Leakage Current at ID = 250 μ A	BVDSS	60			V
Gate Leakage Current at VGS = 60 V	IDSS			1	μ A
Gate Leakage Current at VGS = ± 20 V	IGSS			± 10	μ A
Gate-Source Threshold Voltage at VDS = VGS, ID = 250 μ A	VGS(th)	1		2	V
Drain-Source On-State Resistance at VGS = 10 V, ID = 500mA at VGS = 4.5 V, ID = 200mA	RDS(on)		1.6 2	3 5	Ω
DYNAMIC PARAMETERS					
Gate resistance at VDS = 0 V, VGS=0V, f = 1 MHz	Rg		2		Ω
Forward Transconductance at VDS =10V, ID =200mA	gfs	80			ms
Input Capacitance at VDS=25V, VGS=0V, f=1MHz	Ciss		31		pF
Output Capacitance at VDS=25V, VGS=0V, f=1MHz	Coss		11		pF
Reverse Transfer Capacitance at VDS=25V, VGS=0V, f=1MHz	Crss		3		pF
Gate charge total at VDS =10 V, ID = 0.25 A, VGS = 4.5 V	Qg		0.3		nC
Gate to Source Charge at VDS =10 V, ID = 0.25 A, VGS = 4.5 V	Qgs		0.2		nC
Gate to Drain Charge at VDS =10 V, ID = 0.25 A, VGS = 4.5 V	Qgd		0.08		nC
Turn-On Delay Time at VDD=30V, ID = 0.2 A, Rg = 25 Ω , RL = 150 Ω , VGen=10V	td(on)		7		nS
Turn-Off Delay Time at VDD=30V, ID = 0.2 A, Rg = 25 Ω , RL = 150 Ω , VGeH=10V	td(off)		11		nS
Body-Diode PARAMETERS					
Drain-Source Diode Forward Voltage at IS = 1 A, VGS = 0 V	VSD			1.5	V
Body Diode Reverse Recovery Time at IS = 0.3 A, di/dt = -100 A / μ s	trr		30		nS
Body Diode Reverse Recovery Charge at IS = 0.3 A, di/dt = -100 A / μ s	Qrr		30		nC

Electrical Characteristics Curves

Fig. 1 - Output Characteristics

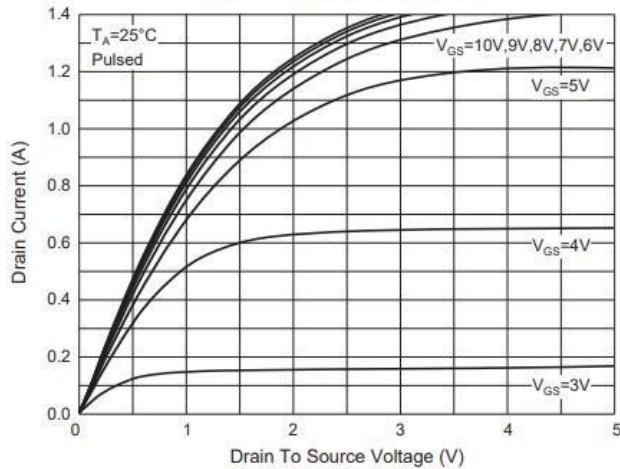
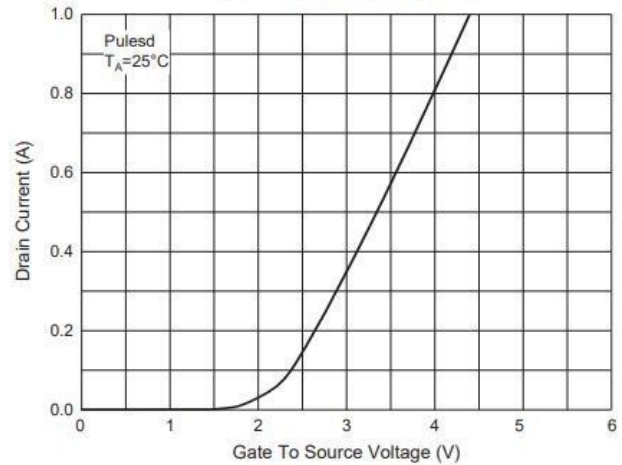
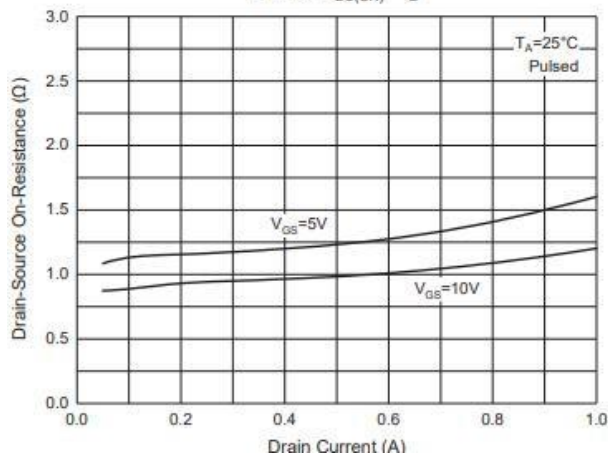
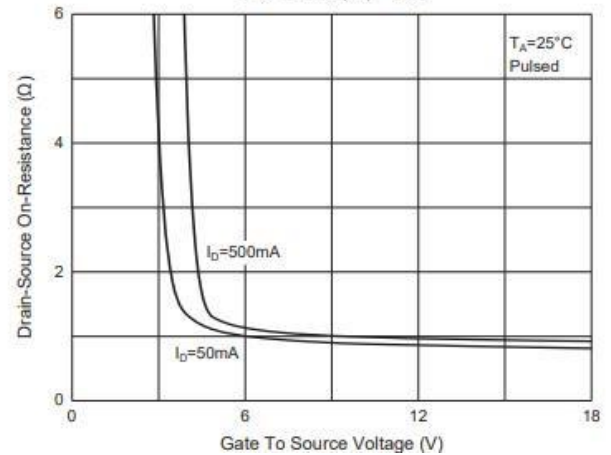
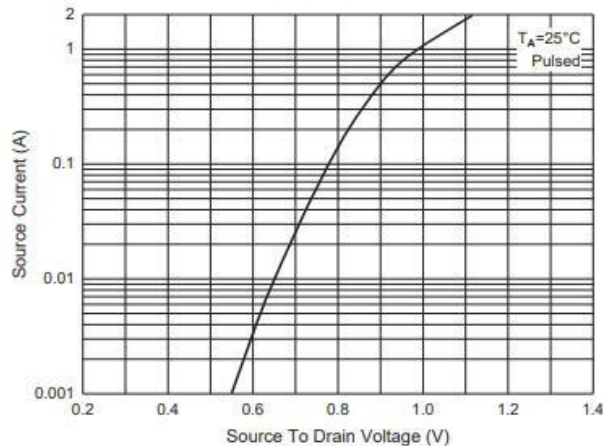


Fig. 2 - Transfer Characteristics

Fig. 3 - $R_{DS(ON)} - I_D$ Fig. 3 - $R_{DS(ON)} - V_{GS}$ Fig. 5 - $I_S - V_{SD}$ 

Test Circuits

Fig.1-1 Switching times test circuit

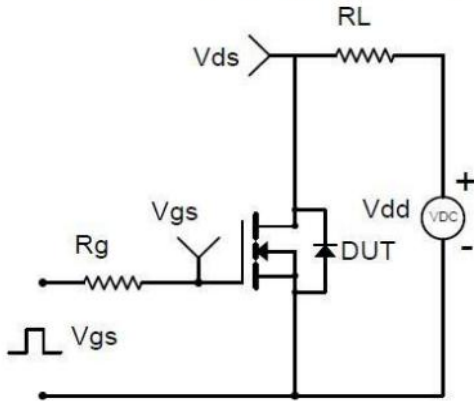


Fig.1-2 Switching Waveform

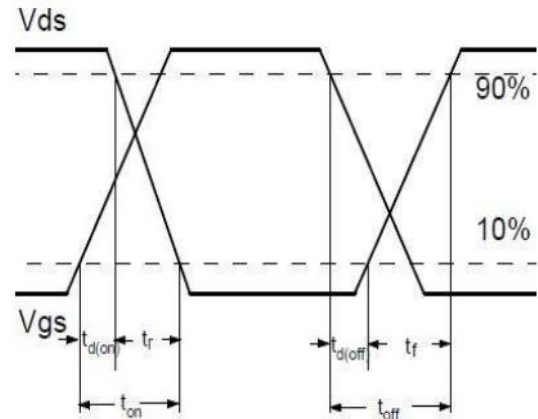


Fig.2-1 Gate charge test circuit

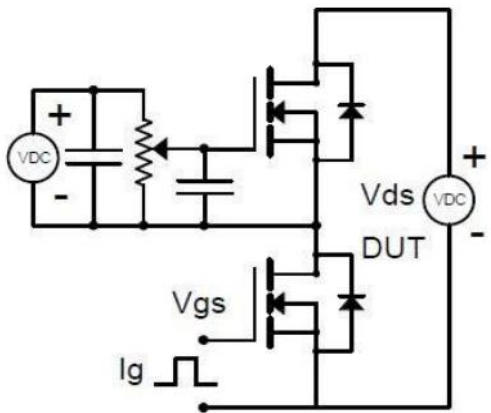


Fig.2-2 Gate charge waveform

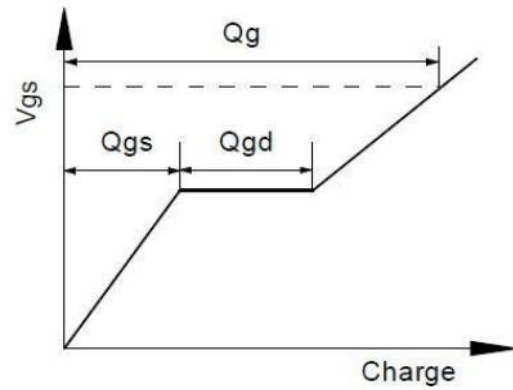


Fig.3-1 Avalanche test circuit

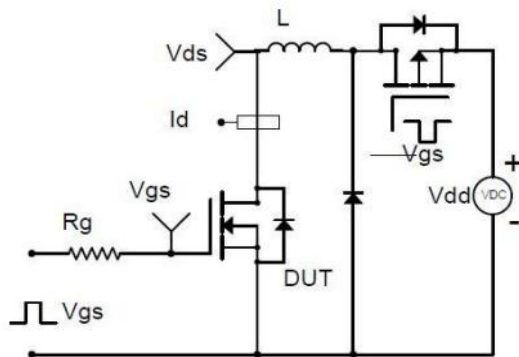
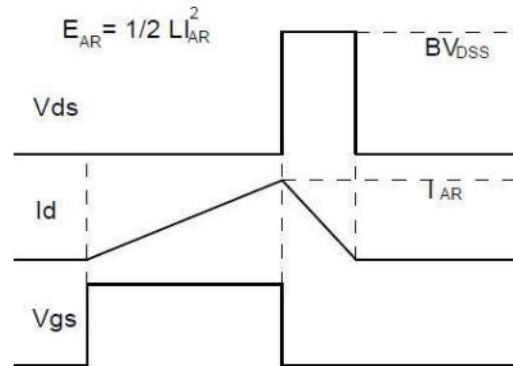
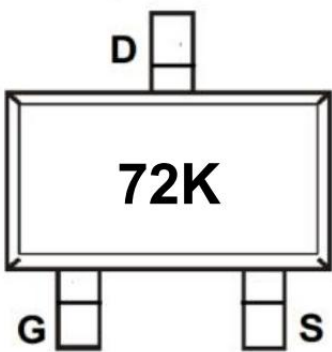


Fig.3-2 Avalanche waveform

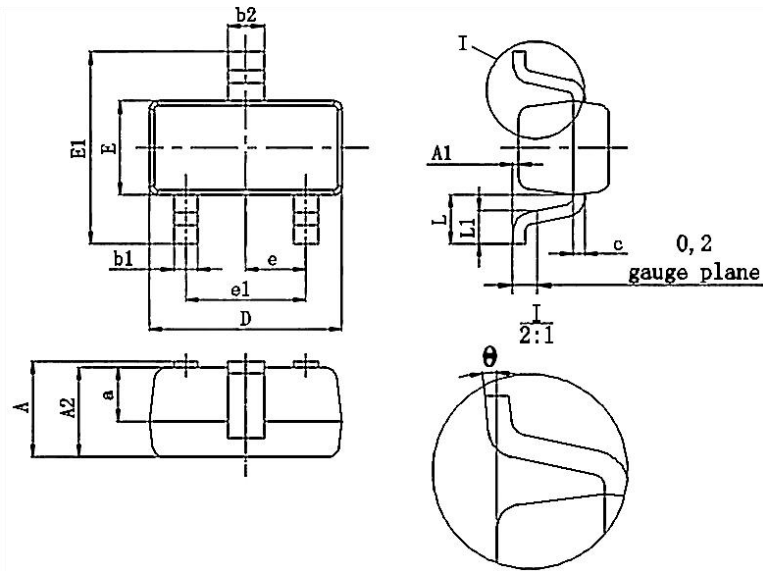


Marking information



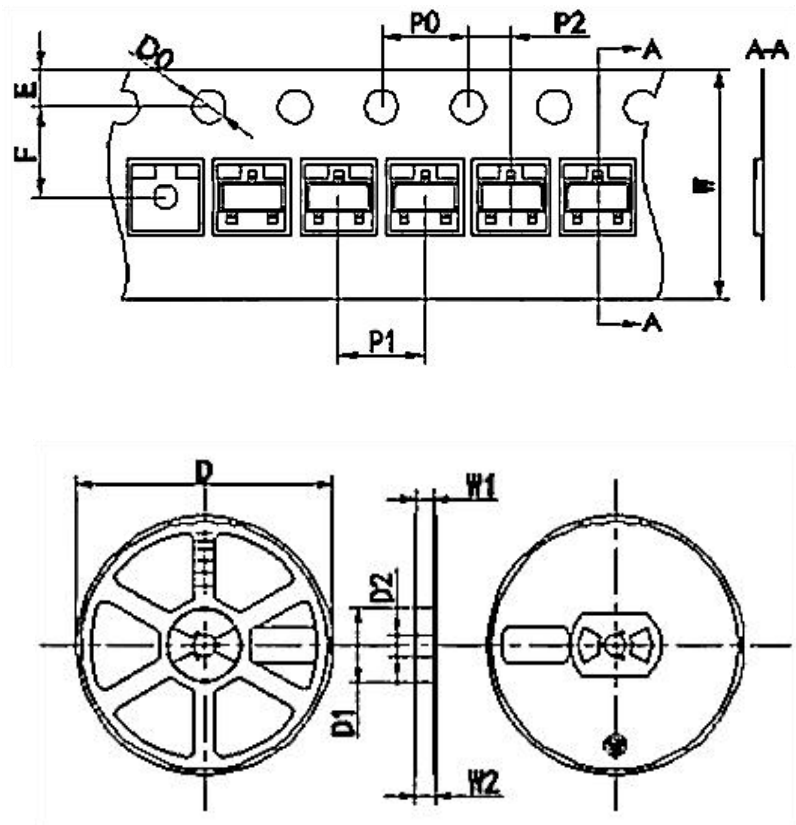
Marking: 72K

Package Outline Dimensions (Units: mm)



符号	尺寸		符号	尺寸		符号	尺寸	
	Min	Max		Min	Max		Min	Max
A	0.7	0.9	E	0.7	0.9	b2	0.25	0.35
A1	0	0.1	E1	1.45	1.75	c	0.08	0.15
A2	0.7	0.8	e	(0.5)		L	(0.4)	
a	(0.45)		e1	0.9	1.1	L1	0.2	0.4
D	1.5	1.7	b1	0.15	0.25	θ	0°	8°

Emboss Carrier Tape&Reel



Symbol	Dimension in Millimeters
Tape	
D0	1.50+0.10/-0.00
E	1.75±0.10
F	3.50±0.10
P0	4.00±0.10
P1	2.00±0.10
P2	2.00±0.10
W	8.00+0.3/-0.1
Reel	
D	178.0±2.00
D1	54.40±1.00
D2	13.00±1.00
W1	9.50±1.00
W2	12.30±1.00