UN200N72TE

ROHS

N-Channel Enhancement Mode MOSFET

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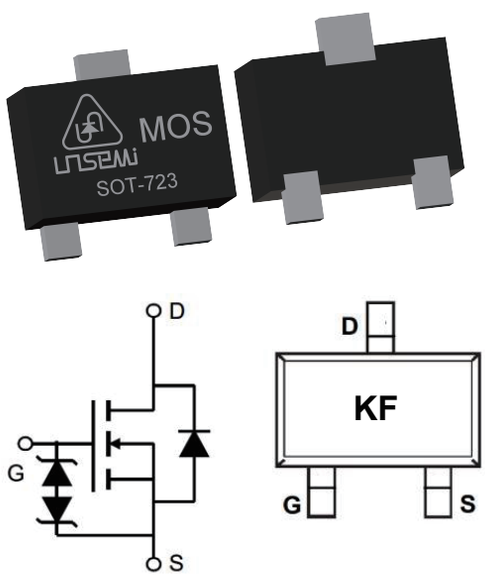
Product Summary

V_{DS}	20V
I_D	0.75A
$R_{DS(ON)}$(@V_{GS}=4.5V I_D=0.65A)	≤330mΩ
$R_{DS(ON)}$(@V_{GS}=2.5V I_D=0.45A)	≤400mΩ
$R_{DS(ON)}$(@V_{GS}=1.8V I_D=0.25A)	≤750mΩ

SOT-723



Features

- ◆ Advanced Trench Process Technology
- ◆ Low Threshold Voltage
- ◆ Fast Switching Speed
- ◆ Halogen-Free & Lead-Free
- ◆ N-Channel Switch with Low $R_{DS(ON)}$

Applications

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

Package Marking And Ordering information

Part Number	Package Type	Packaging	Reel(pcs)
UN200N72TE	SOT-723	Tape & Reel	8000

Absolute Maximum Ratings T_A = 25℃ unless otherwise specified

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	20	V
Gate- Source Voltage	V_{GS}	±12	V
Continuous drain current	I_D	0.75	A
Peak Drain Current, Pulsed [1]	I_{DM}	1.8	A
Power Dissipation [2]	P_{tot}	0.15	W
Operating Junction	T_J	-55~150	℃
Storage Temperature Range	Tstg	-55~150	℃

Thermal Characteristics

Parameter	Symbol	Max	Units
Thermal Resistance from Junction to Ambient [2]	$R_{\theta JA}$	833	℃/W

Note:

1) Pulse width ≤100us, duty cycle ≤1%, limited by Tjmax.

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

Electrical Characteristics at T_A = 25℃ unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = 250μA	20			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} = 20V , V_{GS} = 0V			1	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ±10V , V_{DS} = 0V			±10	μA
Gate-Source Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS} , I_D = 250μA	0.35		1.1	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS} = 4.5V , I_D = 0.65A		170	330	mΩ
		V_{GS} = 2.5V , I_D = 0.45A		230	400	mΩ
		V_{GS} = 1.8V , I_D = 0.25A		350	750	mΩ
Body-Diode PARAMETERS						
Drain-Source Diode Forward Voltage	V_{DS}	I_S = 0.15A, V_{GS} = 0V			1.2	V
Body Diode Reverse Recovery Time	trr	I_F = 3.6A, di/dt = 100A /μs		7.5		ns
Body Diode Reverse Recovery Charge	Qrr			2.5		nC
DYNAMIC PARAMETERS						
Forward Transconductance	gts	V_{DS} = 10V, I_D = 0.8A		1.6		S
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 16V, F = 1MHz		79		pF
Output Capacitance	Coss			13		pF
Reverse Transfer Capacitance	Crss			9		pF
Gate charge total	Qg	V_{DS} = 10V, V_{GS} = 4.5V, I_D = 0.9A		1		nC
Gate to Source Charge	Qgs			0.28		nC
Gate to Drain Charge	Qgd			0.22		nC
Turn-On Delay Time	$t_{d(ON)}$	V_{DS} = 10V, I_D = 0.5A, Rg = 10Ω, V_{GS} = 4.5V		6.7		ns
Turn-On Rise Time	tr			4.8		ns
Turn-Off Delay Time	$t_{d(OFF)}$			17.3		ns
Turn-Off Fall Time	tf			7.4		ns

Electrical Characteristics Curves

Fig. 1 Output Characteristic

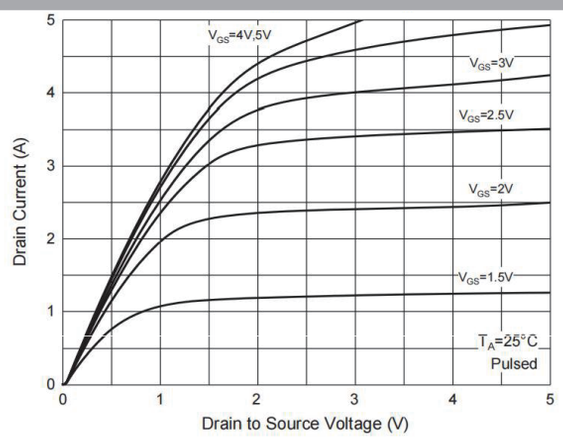


Fig. 2 Transfer Characteristic

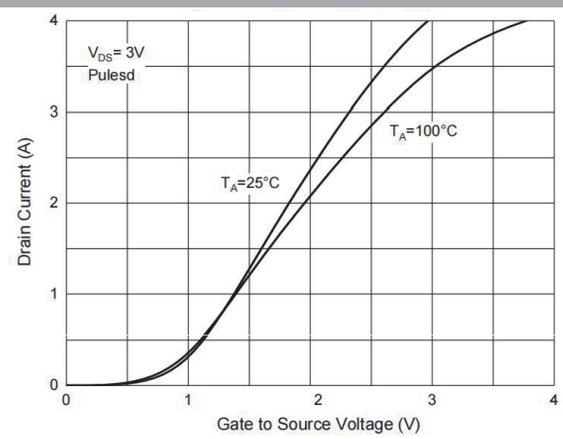


Fig. 3 $R_{DS(ON)}$ — ID

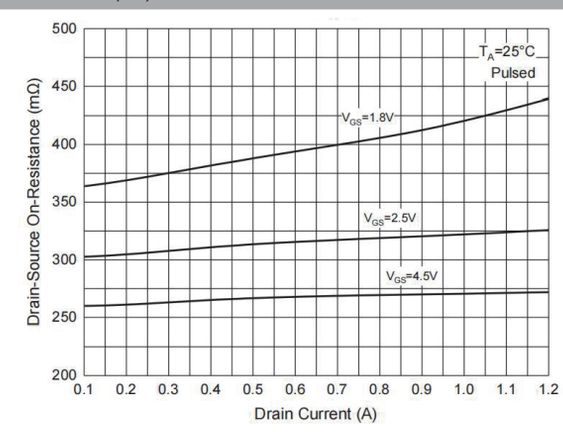


Fig. 4 $R_{DS(ON)}$ — VGS

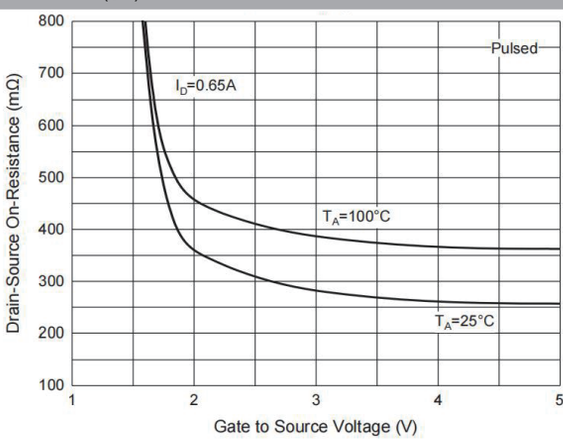


Fig. 5 Is —VSD

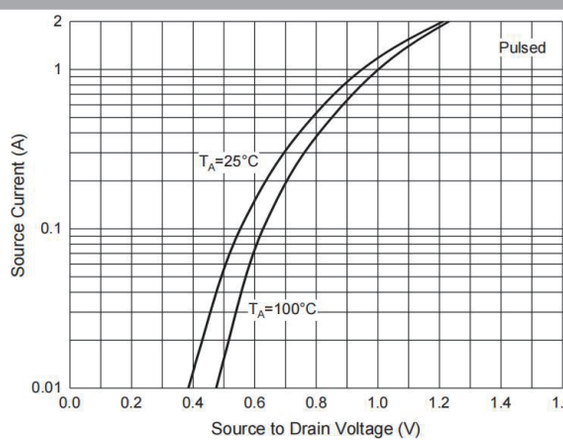
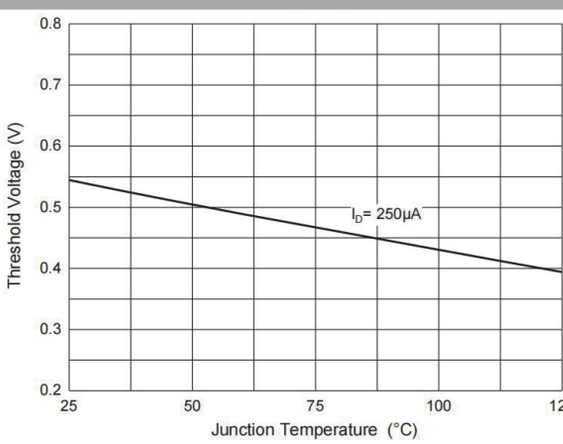


Fig. 6- Threshold Voltage



Test Circuit

Fig.1-1 Switching times test circuit

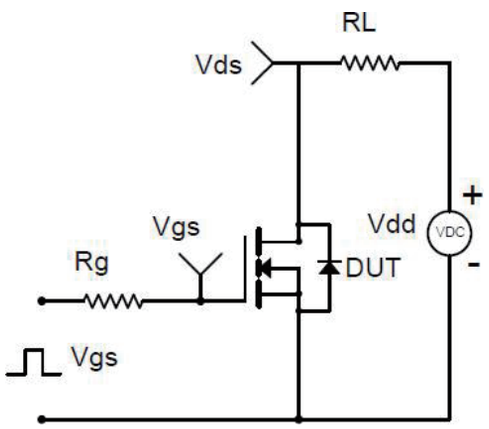


Fig.1-2 Switching Waveform

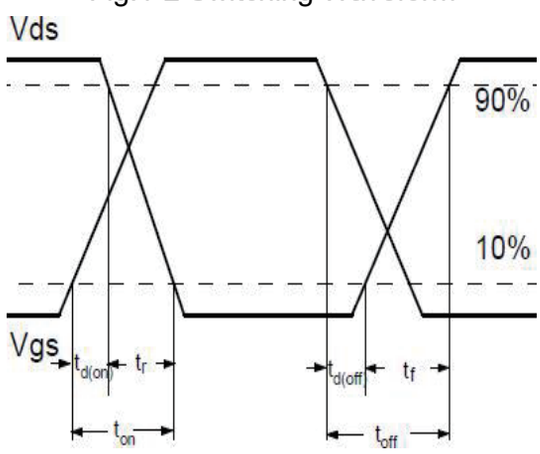


Fig.2-1 Gate charge test circuit

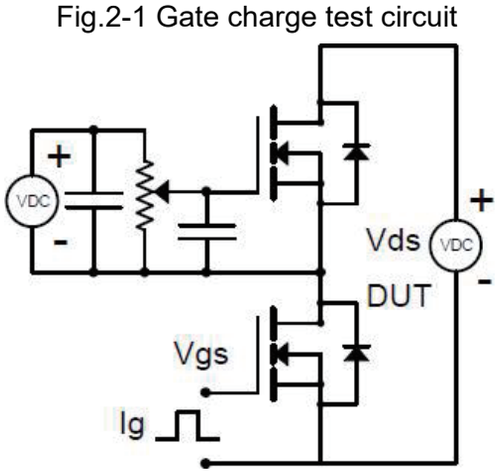


Fig.2-2 Gate charge waveform

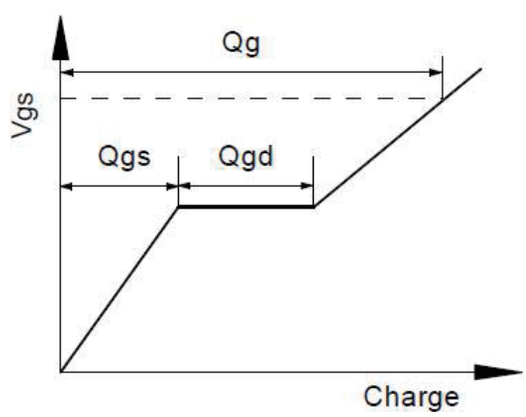


Fig.3-1 Avalanche test circuit

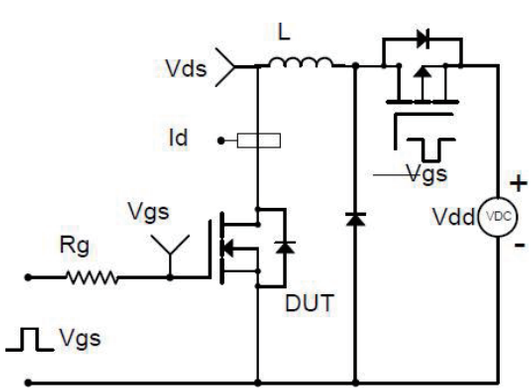
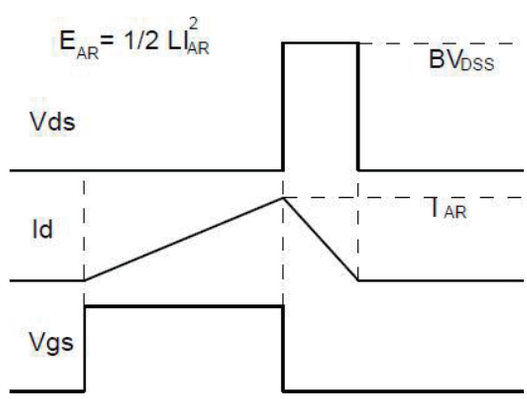
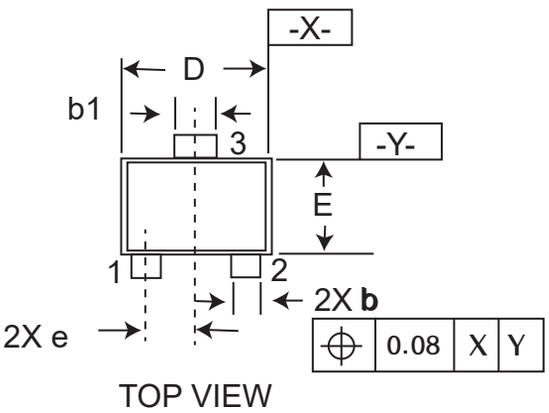


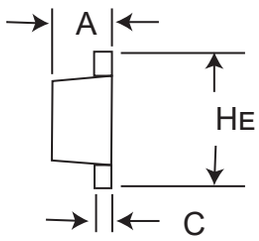
Fig.3-2 Avalanche waveform



SOT-723 Package Outine & Dimensions (Units: mm / in)

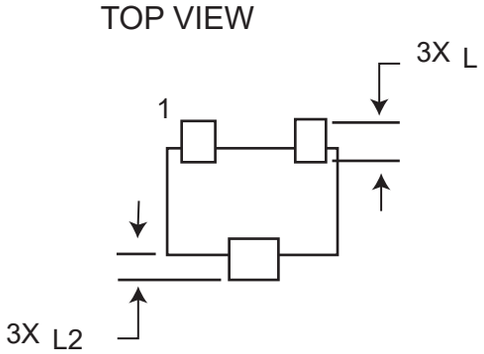


TOP VIEW



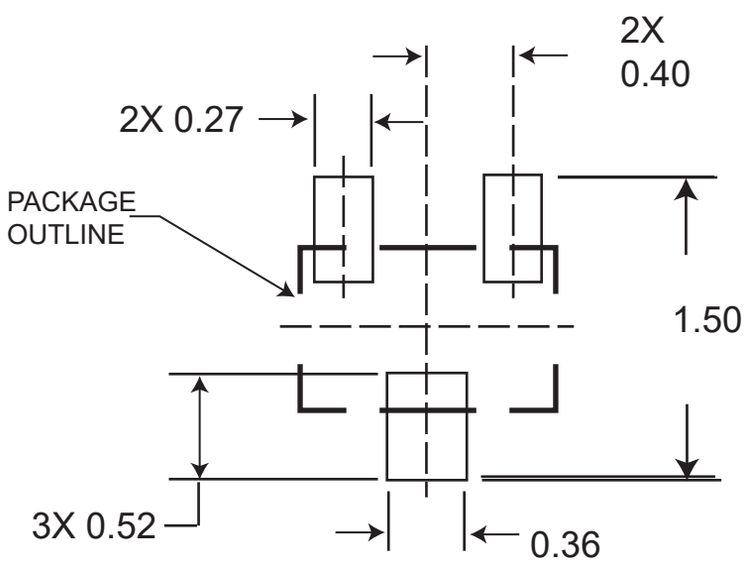
SIDE VIEW

DIM.	Millimeters		
	Min.	Nom.	Max.
A	0.45	0.50	0.55
b	0.15	0.21	0.27
b1	0.25	0.31	0.37
C	0.07	0.12	0.17
D	1.15	1.20	1.25
E	0.75	0.80	0.85
e	0.40BSC		
HE	1.15	1.20	1.25
L	0.29REF		
L2	0.15	0.20	0.25



BOTTOM VIEW

Soldering Footprint



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