



TSM2N7002

60V N-Channel Enhancement Mode MOSFET

SOT-23



Pin assignment:

1. Gate
2. Source
3. Drain

$V_{DS} = 60V$

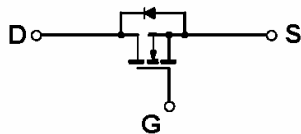
$R_{DS(on)}, V_{GS} @ 10V, I_{DS} @ 500mA = 7.5\Omega$

$R_{DS(on)}, V_{GS} @ 5V, I_{DS} @ 50mA = 13.5\Omega$

Features

- ◇ Advanced trench process technology
- ◇ High density cell design for low on-resistance
- ◇ High input impedance
- ◇ High speed switching
- ◇ No minority carrier storage time
- ◇ CMOS logic compatible input
- ◇ No secondary breakdown
- ◇ Compact and low profile SOT-23 package

Block Diagram



Ordering Information

Part No.	Packing	Package
TSM2N7002CX	Tape & Reel	SOT-23

Absolute Maximum Rating ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	60	V	
Gate-Source Voltage	V_{GS}	± 20	V	
Continuous Drain Current	I_D	115	mA	
Pulsed Drain Current	I_{DM}	800	mA	
Maximum Power Dissipation	P_D	$T_a = 25^\circ C$	225	mW
		$T_a > 25^\circ C$	1.8	MW/ $^\circ C$
Operating Junction Temperature	T_J	+150	$^\circ C$	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	$^\circ C$	

Thermal Performance

Parameter	Symbol	Limit	Unit
Lead Temperature (1/8" from case)	T_L	5	S
Junction to Ambient Thermal Resistance (PCB mounted)	$R_{\theta ja}$	417	$^\circ C/W$

Note: Surface mounted on FR4 board $t \leq 5sec$.

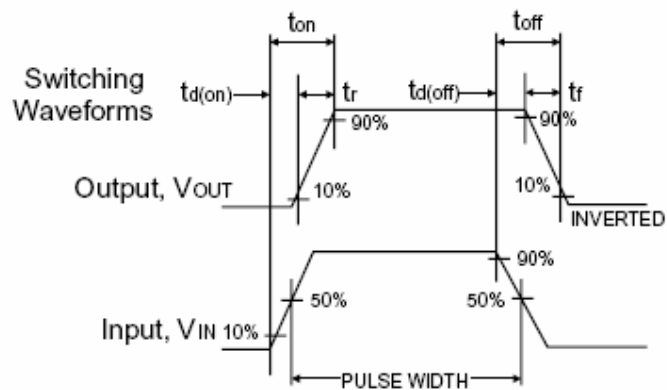
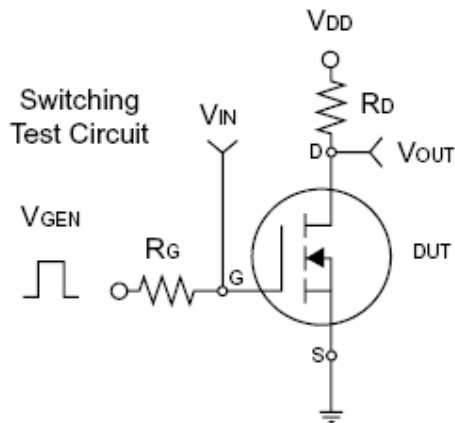


Electrical Characteristics

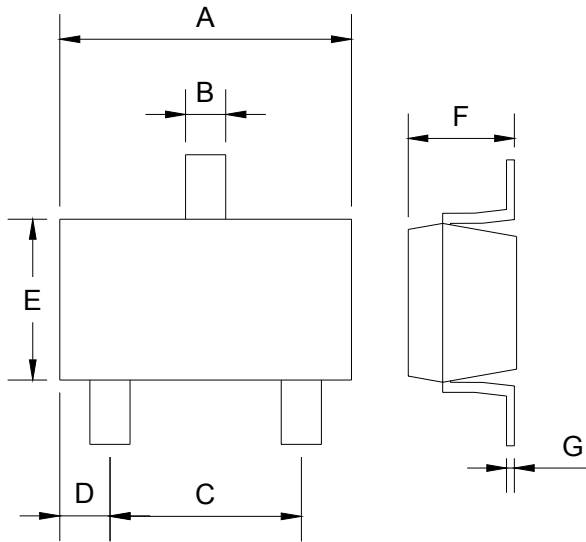
T_j = 25 °C unless otherwise noted

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 10uA	BV _{DSS}	60	--	--	V
Drain-Source On-State Resistance	V _{GS} = 10V, I _D = 500mA	R _{DS(ON)}	--	--	7.5	Ω
Drain-Source On-State Resistance	V _{GS} = 5V, I _D = 50mA	R _{DS(ON)}	--	--	13.5	
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	V _{GS(TH)}	1.0	--	2.5	V
Zero Gate Voltage Drain Current	V _{DS} = 60V, V _{GS} = 0V	I _{DSS}	--	--	1.0	uA
Gate Body Leakage	V _{GS} = ± 20V, V _{DS} = 0V	I _{GSS}	--	--	± 100	nA
On-State Drain Current	V _{DS} □ 2V, V _{GS} = 10V	I _{D(ON)}	500	--	--	mA
Dynamic						
Turn-On Rise Time	V _{DD} = 25V, R _L = 50Ω, I _D = 500mA, V _{GEN} = 10V, R _G = 25Ω	t _r	--	--	20	nS
Turn-Off Fall Time		t _f	--	--	40	
Input Capacitance	V _{DS} = 25V, V _{GS} = 0V, f = 1.0MHz	C _{iss}	--	50	--	pF
Output Capacitance		C _{oss}	--	25	--	
Reverse Transfer Capacitance		C _{rss}	--	5	--	
Source-Drain Diode						
Max. Diode Forward Current		I _S	--	--	115	mA
Diode Forward Voltage	I _S = 115mA, V _{GS} = 0V	V _{SD}	--	1.3	1.5	V

Note : pulse test: pulse width <=300uS, duty cycle <=2%



SOT-23 Mechanical Drawing



SOT-23 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.88	2.91	0.113	0.115
B	0.39	0.42	0.015	0.017
C	1.78	2.03	0.070	0.080
D	0.51	0.61	0.020	0.024
E	1.50	1.70	0.061	0.069
F	1.04	1.08	0.041	0.043
G	0.07	0.09	0.003	0.004