



TSM2N7002

60V N-Channel Enhancement Mode MOSFET

SOT-23



Pin assignment:

1. Gate
2. Source
3. Drain

$V_{DS} = 60V$

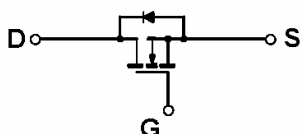
$R_{DS(on)}, V_{GS} @ 10V, I_{DS} @ 500mA = 7.5\Omega$

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

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 (Ta = 25°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	Ta = 25 °C	P _D	225	mW
	Ta > 25 °C		1.8	MW/°C
Operating Junction Temperature		T _J	+150	°C
Operating Junction and Storage Temperature Range		T _J , T _{STG}	- 55 to +150	°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	°C/W

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

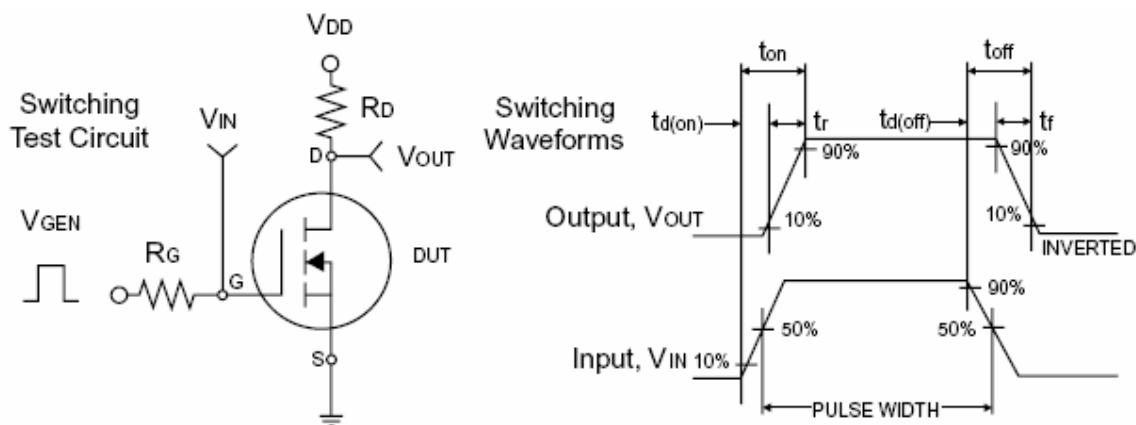


Electrical Characteristics

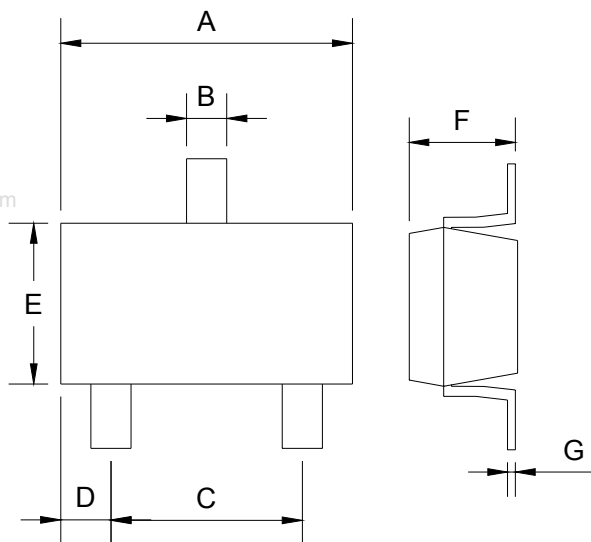
Tj = 25 °C unless otherwise noted

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 10\mu A$	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	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(TH)}$	1.0	--	2.5	V
Zero Gate Voltage Drain Current	$V_{DS} = 60V, V_{GS} = 0V$	I_{DSS}	--	--	1.0	μA
Gate Body Leakage	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS}	--	--	± 100	nA
On-State Drain Current	$V_{DS} \leq 2V, V_{GS} = 10V$	$I_{D(ON)}$	500	--	--	mA
Dynamic						
Turn-On Rise Time	$V_{DD} = 25V, R_L = 50\Omega,$ $I_D = 500mA, V_{GEN} = 10V,$ $R_G = 25\Omega$	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 $\leq 300\mu s$, duty cycle $\leq 2\%$



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