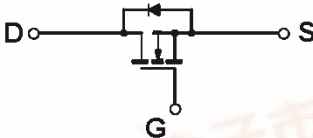


TSC 	TSM2312 20V N-Channel Enhancement Mode MOSFET																																						
SOT-23  Pin assignment: 1. Gate 2. Source 3. Drain	$V_{DS} = 20V$ $R_{DS(on)}, V_{GS} @ 4.5V, I_{ds} @ 5.0A = 33m\Omega$ $R_{DS(on)}, V_{GS} @ 2.5V, I_{ds} @ 4.0A = 40m\Omega$																																						
Features ✧ Advanced trench process technology ✧ High density cell design for ultra low on-resistance ✧ Excellent thermal and electrical capabilities ✧ Compact and low profile SOT-23 package																																							
Block Diagram 	Ordering Information <table><tr><th>Part No.</th><th>Packing</th><th>Package</th></tr><tr><td>TSM2312CX</td><td>Tape & Reel</td><td>SOT-23</td></tr></table>			Part No.	Packing	Package	TSM2312CX	Tape & Reel	SOT-23																														
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Note: Surface mounted on FR4 board $t \leq 5\text{sec}$.

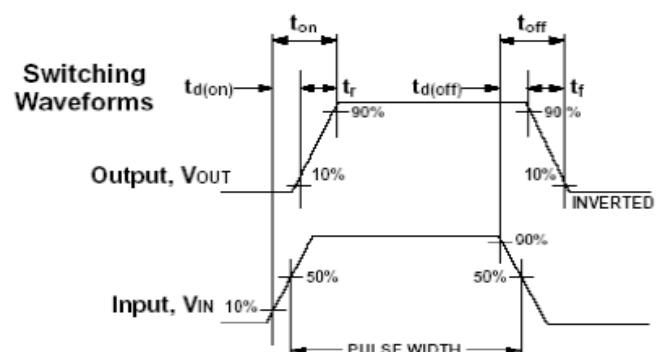
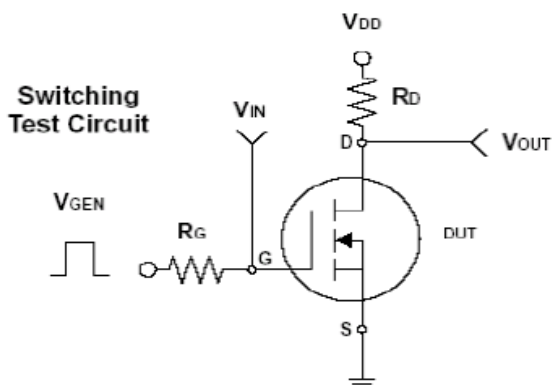


Electrical Characteristics

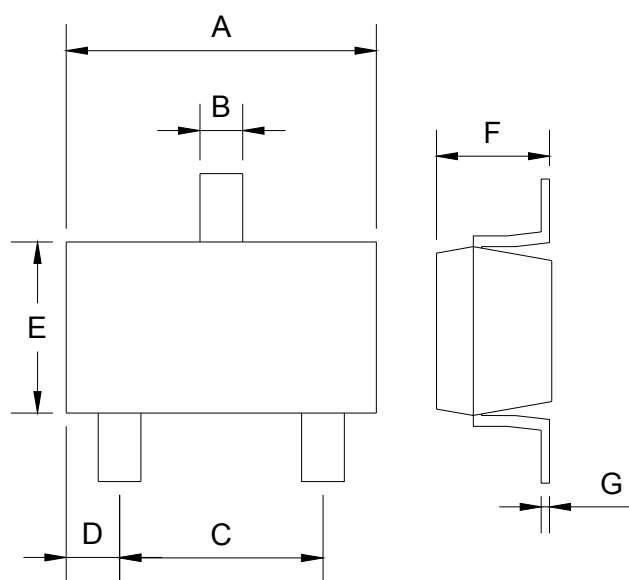
Ta = 25 °C, unless otherwise noted

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	BV_{DSS}	20	--	--	V
Drain-Source On-State Resistance	$V_{GS} = 4.5V, I_D = 5.0A$	$R_{DS(ON)}$	--	25	33	mΩ
Drain-Source On-State Resistance	$V_{GS} = 2.5V, I_D = 4.0A$	$R_{DS(ON)}$	--	35	40	
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(TH)}$	0.45	--	--	V
Zero Gate Voltage Drain Current	$V_{DS} = 20V, V_{GS} = 0V$	I_{DSS}	--	--	1.0	μA
Gate Body Leakage	$V_{GS} = \pm 8V, V_{DS} = 0V$	I_{GSS}	--	--	± 100	nA
On-State Drain Current	$V_{DS} \geq 10V, V_{GS} = 4.5V$	$I_{D(ON)}$	15	--	--	A
Forward Transconductance	$V_{DS} = 5V, I_D = 5.0A$	g_{fs}	--	20	--	S
Dynamic						
Total Gate Charge	$V_{DS} = 10V, I_D = 3.6A,$ $V_{GS} = 4.5V$	Q_g	--	11	14	nC
Gate-Source Charge		Q_{gs}	--	1.4	--	
Gate-Drain Charge		Q_{gd}	--	2.2	--	
Turn-On Delay Time	$V_{DD} = 10V, R_L = 10\Omega,$ $I_D = 1A, V_{GEN} = 4.5V,$ $R_G = 6\Omega$	$t_{d(on)}$	--	15	25	nS
Turn-On Rise Time		t_r	--	40	60	
Turn-Off Delay Time		$t_{d(off)}$	--	48	70	
Turn-Off Fall Time		t_f	--	31	45	
Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1.0MHz$	C_{iss}	--	900	--	pF
Output Capacitance		C_{oss}	--	140	--	
Reverse Transfer Capacitance		C_{rss}	--	100	--	
Source-Drain Diode						
Max. Diode Forward Current		I_S	--	--	1.6	A
Diode Forward Voltage	$I_S = 1.0A, V_{GS} = 0V$	V_{SD}	--	0.75	1.2	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	1.59	1.66	0.063	0.065
F	1.04	1.08	0.041	0.043
G	0.07	0.09	0.003	0.004