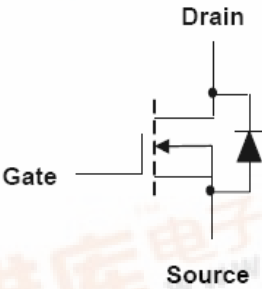


TSC 	TSM55N03 Preliminary N-Channel Enhancement Mode MOSFET								
TO-252  Pin assignment: 1. Gate 2. Drain 3. Source	$V_{DS} = 25V$ $I_D = 55A$ $R_{DS(on)}, V_{gs} @ 10V, I_{ds} @ 30A = 6m\Omega$ $R_{DS(on)}, V_{gs} @ 4.5V, I_{ds} @ 30A = 9m\Omega$								
Features ✧ Advanced trench process technology ✧ High Density Cell Design for Ultra Low On-Resistance ✧ Improved Shoot-Through FOM ✧ Fully Characterized Avalanche Voltage and Current ✧ Specially Designed for DC/DC Converters and Motor Drivers									
Block Diagram 		Ordering Information <table><tr><th>Part No.</th><th>Packing</th><th>Package</th></tr><tr><td>TSM55N03CP</td><td>Tape & Reel</td><td>TO-252</td></tr></table>		Part No.	Packing	Package	TSM55N03CP	Tape & Reel	TO-252
Part No.	Packing	Package							
TSM55N03CP	Tape & Reel	TO-252							
Absolute Maximum Rating (T_A = 25 °C unless otherwise noted)									
Parameter		Symbol	Limit	Unit					
Drain-Source Voltage		V_{DS}	25	V					
Gate-Source Voltage		V_{GS}	±20	V					
Continuous Drain Current		I_D	55	A					
Pulsed Drain Current		I_{DM}	350						
Maximum Power Dissipation	T_A = 25 °C	P_D	70	W					
	T_A = 75 °C		42	W/°C					
Operating Junction Temperature		T_J	+150	°C					
Operating Junction and Storage Temperature Range		T_J, T_{STG}	- 55 to +150	°C					
Single Pulse Drain to Source Avalanche Energy (V_{DD} = 100V, V_{GS}=10V, I_{AS}=2A, L=10mH, R_G=25Ω)		E_{AS}	300	mJ					
Thermal Performance									
Parameter		Symbol	Limit	Unit					
Lead Temperature (1/8" from case)		T_L	10	S					
Junction-to-case Thermal Resistance		Rθjc	1.8	°C/W					
Junction to Ambient Thermal Resistance (PCB mounted)		Rθja	40						

Note: 1. Maximum DC current limited by the package

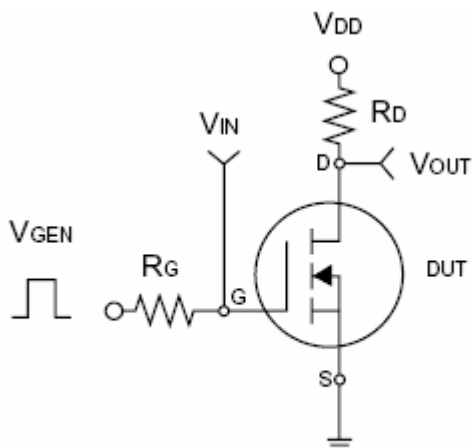
2. 1-in² 2oz Cu PCB board



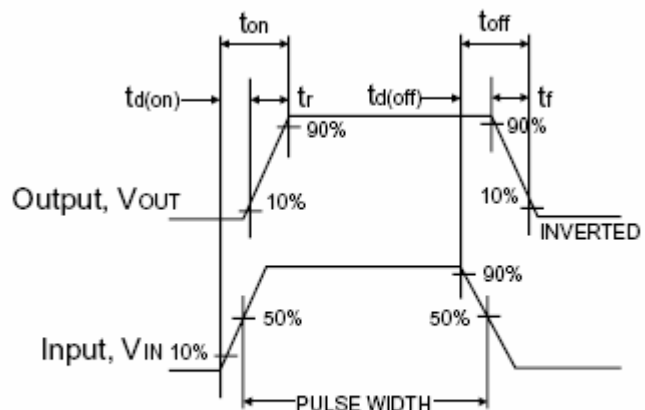
Electrical Characteristics						
T _J = 25 °C, unless otherwise noted						
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250uA	BV _{DSS}	30	--	--	V
Drain-Source On-State Resistance	V _{GS} = 4.5V, I _D = 30A	R _{DS(ON)}	--	7.5	9.0	mΩ
Drain-Source On-State Resistance	V _{GS} = 10V, I _D = 30A	R _{DS(ON)}	--	4.5	6.0	mΩ
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	V _{GS(TH)}	1.0	1.6	3.0	V
Zero Gate Voltage Drain Current	V _{DS} = 25V, V _{GS} = 0V	I _{DSS}	--	--	1.0	uA
Gate Body Leakage	V _{GS} = ± 20V, V _{DS} = 0V	I _{GSS}	--	--	± 100	nA
Gate Resisrance		R _g	--	--	--	
Forward Transconductance	V _{DS} =15V, I _D = 15A	g _{fs}	--	--	--	S
Dynamic						
Total Gate Charge	V _{DS} = 15V, I _D = 25A, V _{GS} = 10V	Q _g	--	26	--	nC
Gate-Source Charge		Q _{gs}	--	6.0	--	
Gate-Drain Charge		Q _{gd}	--	5.0	--	
Turn-On Delay Time	V _{DD} = 15V, R _L = 15Ω, I _D = 1A, V _{GEN} = 10V, R _G = 6Ω	t _{d(on)}	--	17	--	nS
Turn-On Rise Time		t _r	--	3.5	--	
Turn-Off Delay Time		t _{d(off)}	--	40	--	
Turn-Off Fall Time		t _f	--	6.0	--	
Input Capacitance	V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz	C _{iss}	--	2134	--	pF
Output Capacitance		C _{oss}	--	343	--	
Reverse Transfer Capacitance		C _{rss}	--	134	--	
Source-Drain Diode						
Max. Diode Forward Current		I _S	--	--	20	A
Diode Forward Voltage	I _S = 20A, V _{GS} = 0V	V _{SD}	--	0.85	1.3	V

Note: 1. pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

2. Negligible, Dominated by circuit inductance.

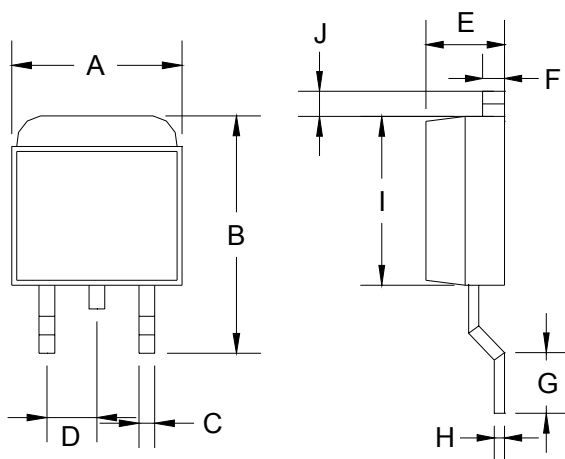


Switching Test Circuit



Switchin Waveforms

TO-252 Mechanical Drawing



TO-252 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.570	6.840	0.259	0.269
B	9.250	10.400	0.364	0.409
C	0.550	0.700	0.022	0.028
D	2.560	2.670	0.101	0.105
E	2.300	2.390	0.090	0.094
F	0.490	0.570	0.019	0.022
G	1.460	1.580	0.057	0.062
H	0.520	0.570	0.020	0.022
I	5.340	5.550	0.210	0.219
J	1.460	1.640	0.057	0.065