



Pin Definition:
 1. Gate
 2. Drain
 3. Source

PRODUCT SUMMARY

V _{DS} (V)	R _{DS(on)} (mΩ)	I _D (A)
-60	170 @ V _{GS} = -10V	-5
	220 @ V _{GS} = -4.5V	-2

Features

- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On-resistance

Application

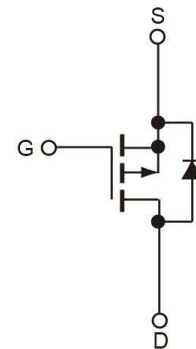
- Load Switch
- PA Switch

Ordering Information

Part No.	Package	Packing
TSM10P06CP ROG	TO-252	2.5Kpcs / 13" Reel

Note: "G" denote for Halogen Free Product

Block Diagram



P-Channel MOSFET

Absolute Maximum Rating (T_A = 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	-10	A
Pulsed Drain Current	I _{DM}	-20	A
Continuous Source Current (Diode Conduction) ^{a,b}	I _S	-10	A
Single Pulse Avalanche Energy (Note 2)	E _{AS}	5	mJ
Avalanche Current	I _{AS}	-10	A
Total Power Dissipation @ T _C =25C	P _{DTOT}	37	W
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
Junction to Case Thermal Resistance	R _{θJC}	4	°C/W
Junction to Ambient Thermal Resistance (PCB mounted)	R _{θJA}	70	°C/W

Notes:

- a. Pulse width limited by the Maximum junction temperature
- b. Surface Mounted on FR4 Board, t ≤ 10 sec.

Electrical Specifications (Ta = 25°C unless otherwise noted)

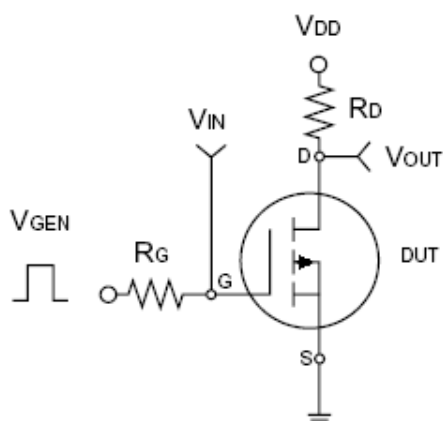
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	BV_{DSS}	-60	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(TH)}$	-1	--	--	V
Gate Body Leakage	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS} = -60V, V_{GS} = 0V$	I_{DSS}	--	--	-1	μA
On-State Drain Current ^a	$V_{DS} = -5V, V_{GS} = -10V$	$I_{D(ON)}$	-10	--	--	A
Drain-Source On-State Resistance	$V_{GS} = -10V, I_D = -5A$	$R_{DS(ON)}$	--	130	170	m Ω
	$V_{GS} = -5V, I_D = -2A$		--	170	220	
Forward Transconductance	$V_{DS} = -15V, I_D = -3.5A$	g_{fs}	--	6	--	S
Diode Forward Voltage	$I_S = -2.5A, V_{GS} = 0V$	V_{SD}	--	-1.25	-1.5	V
Dynamic						
Total Gate Charge	$V_{DS} = -15V, I_D = -3.5A, V_{GS} = -10V$	Q_g	--	6	--	nC
Gate-Source Charge		Q_{gs}	--	1.7	--	
Gate-Drain Charge		Q_{gd}	--	1.5	--	
Input Capacitance	$V_{DS} = -30V, V_{GS} = 0V, f = 1.0MHz$	C_{iss}	--	540	--	pF
Output Capacitance		C_{oss}	--	60	--	
Reverse Transfer Capacitance		C_{rss}	--	30	--	
Switching						
Turn-On Delay Time	$V_{DD} = -15V, R_L = 15\Omega, I_D = -1A, V_{GEN} = -10V, R_G = 6\Omega$	$t_{d(on)}$	--	7	--	nS
Turn-On Rise Time		t_r	--	9	--	
Turn-Off Delay Time		$t_{d(off)}$	--	19	--	
Turn-Off Fall Time		t_f	--	4	--	

Notes 1: Pulse test: $PW \leq 300\mu S$, duty cycle $\leq 2\%$

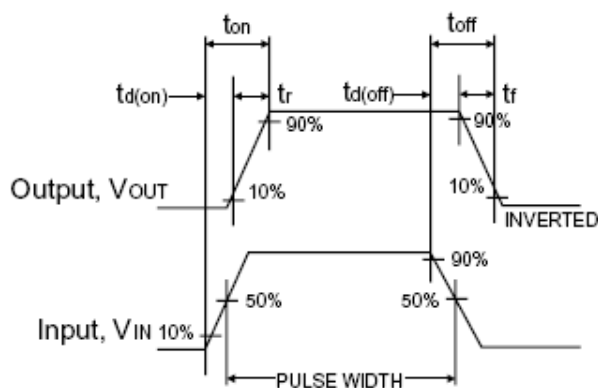
Notes 2: $L=0.1mH$,

Notes 3: For DESIGN AID ONLY, not subject to production testing.

Notes 4: Switching time is essentially independent of operating temperature.

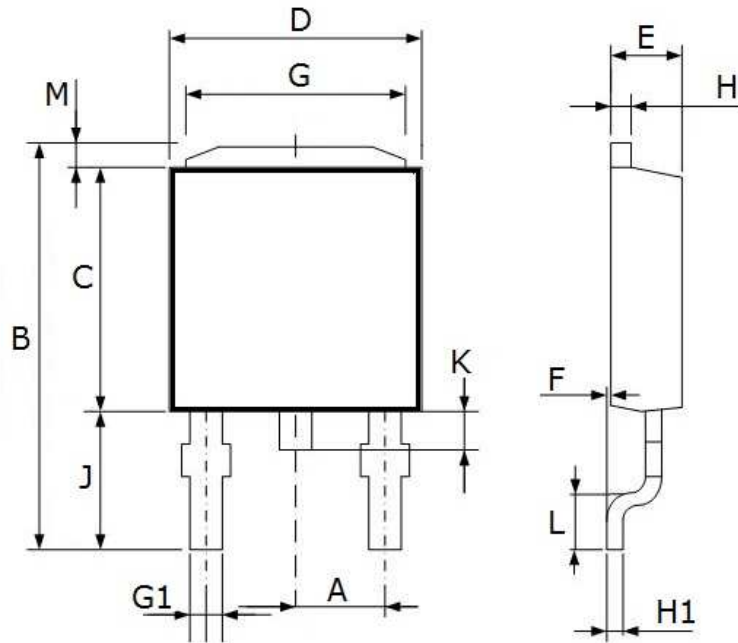


Switching Test Circuit



Switchin Waveforms

TO-252 Mechanical Drawing



TO-252 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.30 BSC		0.090 BSC	
B	10.20	10.80	0.402	0.425
C	5.30	5.70	0.209	0.224
D	6.30	6.70	0.248	0.264
E	2.10	2.50	0.083	0.098
F	0.00	0.20	0.000	0.008
G	4.80	5.20	0.189	0.205
G1	0.40	0.80	0.016	0.031
H	0.40	0.60	0.016	0.024
H1	0.35	0.65	0.014	0.026
J	3.35	3.65	0.132	0.144
K	0.50	1.10	0.020	0.043
L	0.90	1.50	0.035	0.059
M	1.30	1.70	0.051	0.067

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