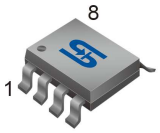
TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

TSM4944D

30V Dual N-Channel MOSFET

SOP-8



Pin Definition:

1. Source 1	8. Drain 1
2. Gate 1	7. Drain 1
3. Source 2	6. Drain 2
4. Gate 2	5. Drain 2

PRODUCT SUMMARY

V_{DS} (V)	$R_{DS(on)}$(mΩ)	I_D (A)
30	13.2 @ V_{GS} = 10V	12.2
	25 @ V_{GS} = 4.5V	9.4

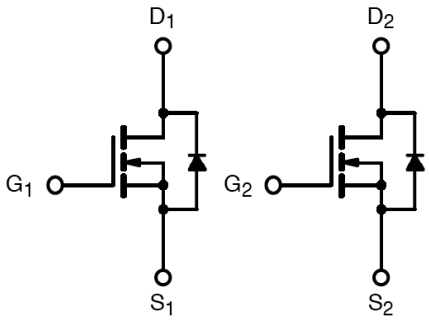
Features

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

Application

- Load Switch
- Dc-DC Conversion

Block Diagram



Dual N-Channel MOSFET

Ordering Information

Part No.	Package	Packing
TSM4944DCS RLG	SOP-8	2.5Kpcs / 13” Reel

Note: “G” denote for Halogen Free Product

Absolute Maximum Rating (Ta = 25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current		I_D	12.2	A
Pulsed Drain Current		I_{DM}	30	A
Continuous Source Current (Diode Conduction) (Note)		I_S	1.9	A
Maximum Power Dissipation	T_A = 25°C	P_D	2.3	W
	T_A = 75°C		1.2	
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	$R\Theta_{JC}$	1.8	°C/W
Junction to Ambient Thermal Resistance (PCB mounted)	$R\Theta_{JA}$	40	°C/W

Notes 1: Maximum DC current limited by the package

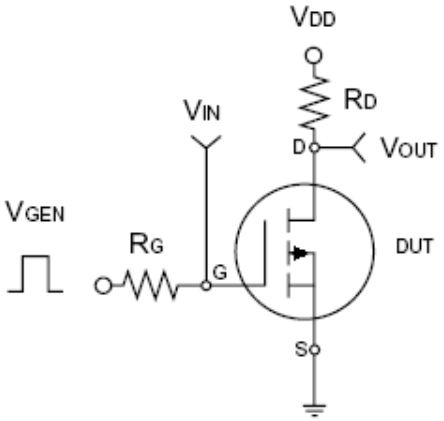
Notes 2: Surface Mounted on 1” x 1” FR4 Board, t ≤ 10 sec.

TSM4944D
30V Dual N-Channel MOSFET

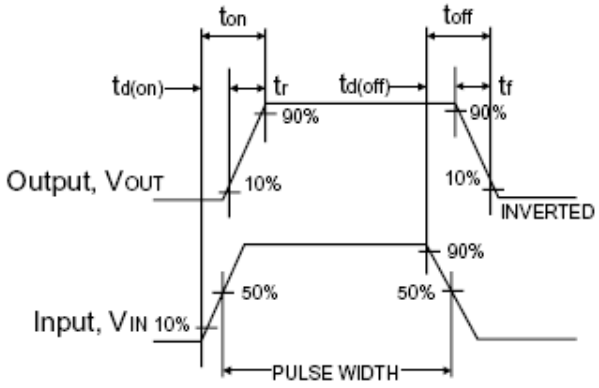
Electrical Specifications (Ta = 25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250uA	BV_{DSS}	30	--	--	V
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250uA	$V_{GS(TH)}$	1.0	1.8	3.0	V
Gate Body Leakage	V_{GS} = ±20V, V_{DS} = 0V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS} = 30V, V_{GS} = 0V	I_{DSS}	--	--	1.0	uA
On-State Drain Current	V_{DS} ≥5V, V_{GS} = 10V	$I_{D(ON)}$	30	--	--	A
Drain-Source On-State Resistance	V_{GS} = 10V, I_D = 12.2A	$R_{DS(ON)}$	--	11	13.2	mΩ
	V_{GS} = 4.5V, I_D = 9.4A		--	19	25	
Forward Transconductance	V_{DS} = 15V, I_D = 15A	g_{fs}	--	32	--	S
Diode Forward Voltage	I_S = 1.9A, V_{GS} = 0V	V_{SD}	--	0.85	1.3	V
Dynamic[b]						
Total Gate Charge	V_{DS} = 15V, I_D = 12.2A, V_{GS} = 10V	Q_g	--	26	--	nC
Gate-Source Charge		Q_{gs}	--	6	--	
Gate-Drain Charge		Q_{gd}	--	5	--	
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	--	
Switching[c]						
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	--	

Notes:
a. pulse test: PW ≤300μS, duty cycle ≤2%
b. For DESIGN AID ONLY, not subject to production testing.
b. Switching time is essentially independent of operating temperature.

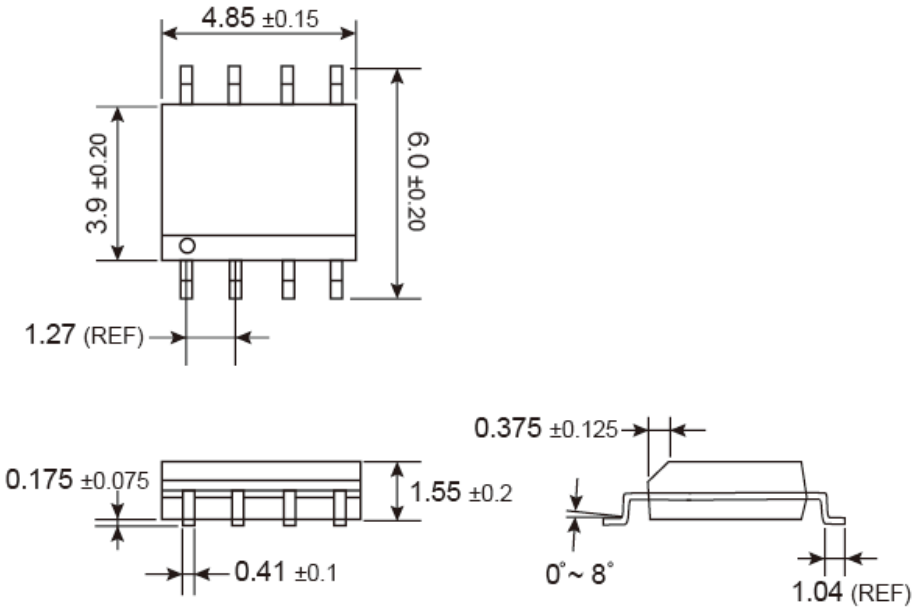


Switching Test Circuit



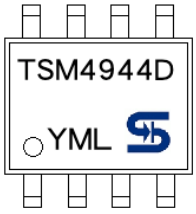
Switchin Waveforms

SOP-8 Mechanical Drawing



Unit: Millimeters

Marking Diagram



Y = Year Code
M = Month Code for Halogen Free Product
(**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apl, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
L = Lot Code

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