

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

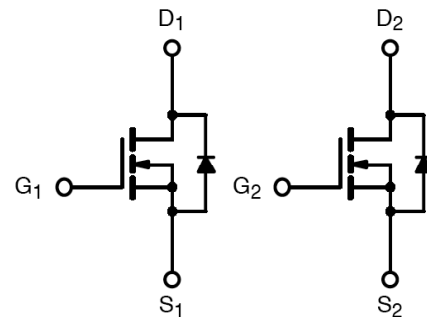
- Load Switch
- Dc-DC Conversion

Ordering Information

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

Note: "G" denote for Halogen Free Product

Block Diagram



Dual N-Channel MOSFET

Absolute Maximum Rating (T_a = 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	P _D	T _A = 25°C	2.3
		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 _{θJC}	1.8	°C/W
Junction to Ambient Thermal Resistance (PCB mounted)	R _{θJA}	40	°C/W

Notes 1: Maximum DC current limited by the package

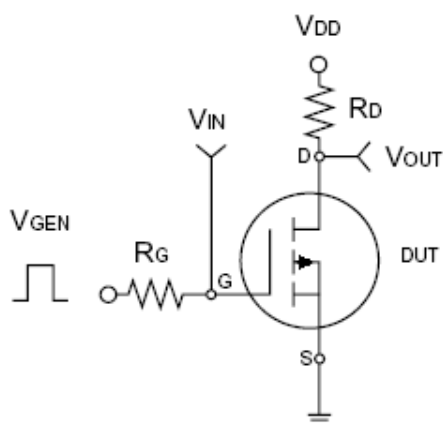
Notes 2: Surface Mounted on 1" x 1" FR4 Board, t ≤ 10 sec.

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

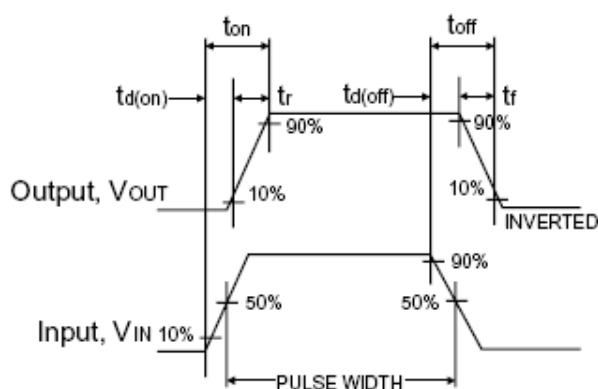
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	BV_{DSS}	30	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(TH)}$	1.0	1.8	3.0	V
Gate Body Leakage	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS} = 30V, V_{GS} = 0V$	I_{DSS}	--	--	1.0	μA
On-State Drain Current	$V_{DS} \geq 5V, V_{GS} = 10V$	$I_{D(ON)}$	30	--	--	A
Drain-Source On-State Resistance	$V_{GS} = 10V, I_D = 12.2A$	$R_{DS(ON)}$	--	11	13.2	m Ω
	$V_{GS} = 4.5V, I_D = 9.4A$		--	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	$V_{DD} = 15V, R_L = 15\Omega,$ $I_D = 1A, V_{GEN} = 10V,$ $R_G = 6\Omega$	$t_{d(on)}$	--	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:

- pulse test: $PW \leq 300\mu S$, duty cycle $\leq 2\%$
- For DESIGN AID ONLY, not subject to production testing.
- Switching time is essentially independent of operating temperature.

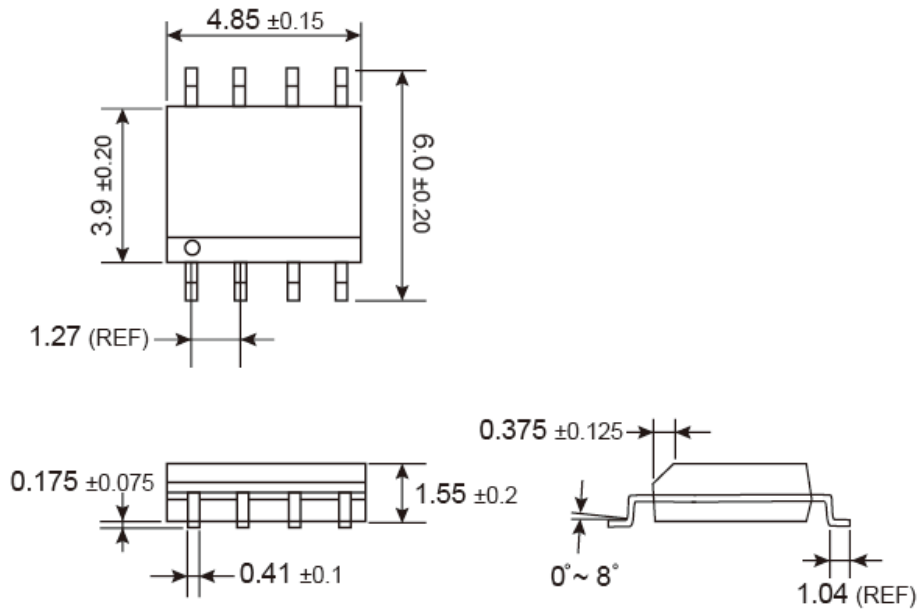


Switching Test Circuit



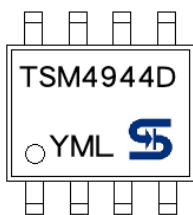
Switchin Waveforms

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**=Apr, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
- L** = Lot Code

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