



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

Features

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

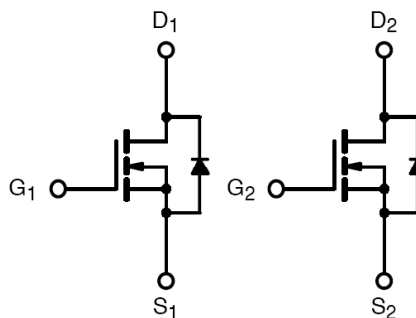
Application

- Load Switch
- Dc-DC Conversion

Ordering Information

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

Block Diagram



Dual N-Channel MOSFET

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) ^{a,b}	I_S	1.9	A
Maximum Power Dissipation	P_D	Ta = 25°C	2.3
		Ta = 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:

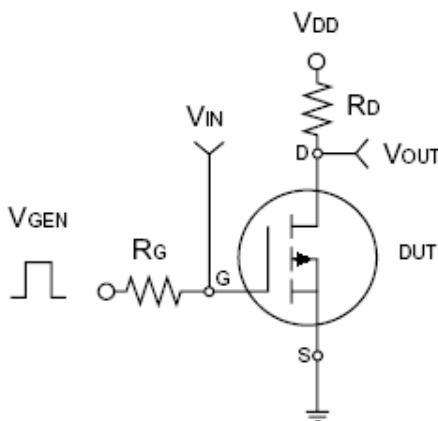
- Maximum DC current limited by the package
- Surface Mounted on 1" x 1" FR4 Board, t ≤ 10 sec.

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

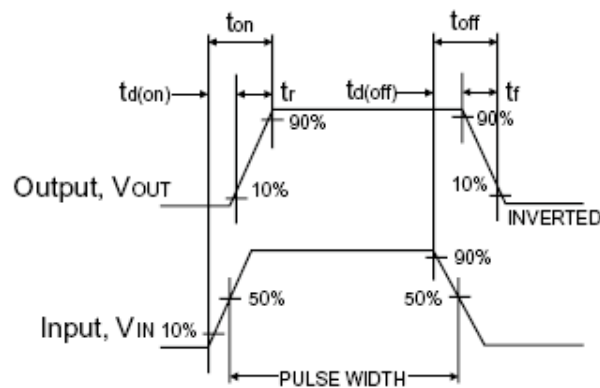
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250uA	BV _{DSS}	30	--	--	V
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	V _{GS(TH)}	1.0	1.8	3.0	V
Gate Body Leakage	V _{GS} = ±20V, V _{DS} = 0V	I _{GSS}	--	--	±100	nA
Zero Gate Voltage 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		--	15.4	18	
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.

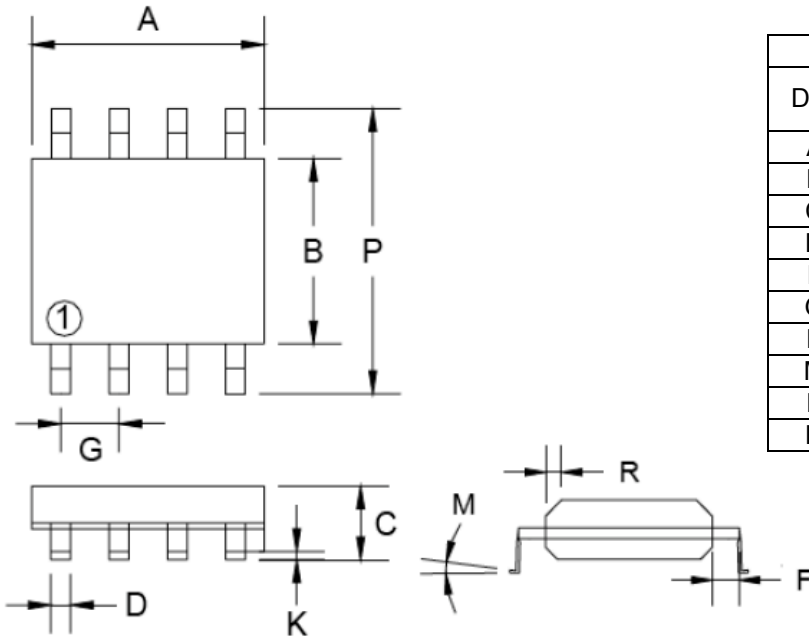


Switching Test Circuit



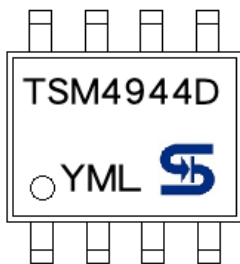
Switchin Waveforms

SOP-8 Mechanical Drawing



SOP-8 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX.
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27BSC		0.05BSC	
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

Marking Diagram



- Y** = Year Code
- M** = Month Code
(A=Jan, B=Feb, C=Mar, D=Apr, E=May, F=Jun, G=Jul, H=Aug, I=Sep, J=Oct, K=Nov, L=Dec)
- L** = Lot Code

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