

Preliminary

TSM4886

30V N-Channel MOSFET



SOP-8



Pin Definition:

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

PRODUCT SUMMARY

V _{DS} (V)	$R_{DS(on)}(m\Omega)$	I _D (A)	
30	10 @ V _{GS} = 10V	13	
	13.5 @ V _{GS} = 4.5V	11	

Features

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

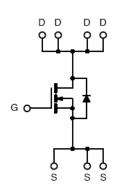
Application

- DC-DC Conversion
- Battery Switch

Ordering Information

Part No.	Package	Packing
TSM4886CS RL	SOP-8	2.5Kpcs / 13" Reel

Block Diagram



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	13	A
Pulsed Drain Current		I _{DM}	50	Α
Continuous Source Current (Diode Co	onduction) ^{a,b}	I _S	2.6	Α
Maximum Power Dissipation	Ta = 25°C	- P _D	2.95	W
	Ta = 75°C		1.9	VV
Operating Junction Temperature		TJ	+150	°C
Operating Junction and Storage Temp	erature Range	T _J , T _{STG} - 55 to +150		°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Junction to Case Thermal Resistance	R⊖ _{JC}	25	°C/W
Junction to Ambient Thermal Resistance (PCB mounted)	$R\Theta_{JA}$	50	°C/W

Notes:

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

1/4 Version: Preliminary

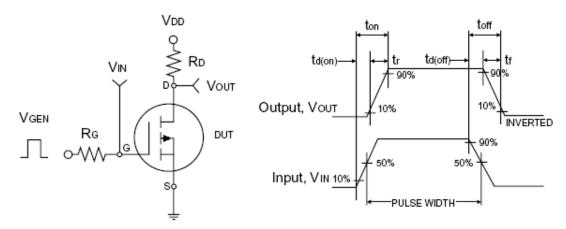
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Electrical Specifications (Ta = 25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Тур	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250uA$	BV_{DSS}	30	1		V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	$V_{GS(TH)}$	1	1.8	3	V
Gate Body Leakage	$V_{GS} = \pm 20V, V_{DS} = 0V$	I _{GSS}	1	-	±100	nA
Zero Gate Voltage Drain Current	$V_{DS} = 24V, V_{GS} = 0V$	I _{DSS}	I	I	1.0	μA
On-State Drain Current ^a	V _{DS} ≥ 5V, V _{GS} = 10V	$I_{D(ON)}$	40			Α
Drain Course On Ctate Besistance	$V_{GS} = 10V, I_{D} = 13A$	Б	1	7.8	10	mΩ
Drain-Source On-State Resistance ^a	$V_{GS} = 4.5V, I_{D} = 11A$	R _{DS(ON)}		10.5	13.5	
Forward Transconductance ^a	V _{DS} = 15V, I _D = 13A	g _{fs}		38		S
Diode Forward Voltage	$I_S = 2.6A, V_{GS} = 0V$	V_{SD}		0.85	1.3	V
Dynamic ^b						
Total Gate Charge	V _{DS} = 15V, I _D = 13A,	Q_g		26		
Gate-Source Charge	$V_{DS} = 15V, I_D = 15A,$ $V_{GS} = 5V$	Q_gs		6		nC
Gate-Drain Charge	V _{GS} – JV	Q_{gd}		5		
Input Capacitance	\/ - 15\/ \/ - 0\/	C_{iss}		2134		
Output Capacitance	$V_{DS} = 15V, V_{GS} = 0V,$ f = 1.0MHz	C _{oss}		343		pF
Reverse Transfer Capacitance	1 - 1.0IVINZ	C_{rss}	I	134		
Switching ^c						
Turn-On Delay Time	V - 45V D - 4.00	$t_{d(on)}$	I	17		
Turn-On Rise Time	$V_{DD} = 15V, R_L = 1.0\Omega,$	t _r	-	3.5		nS
Turn-Off Delay Time	$I_D = 1A, V_{GEN} = 10V,$ $R_G = 3\Omega$	$t_{d(off)}$	-	40		113
Turn-Off Fall Time	1XG = 322	t _f		6		

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



Switching Test Circuit

Switchin Waveforms

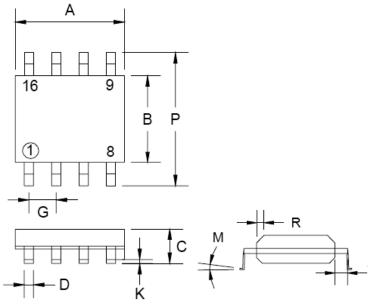


TSM4886





SOP-8 Mechanical Drawing



SOP-8 DIMENSION					
DIM	MILLIMETERS		INCHES		
	MIN	MAX	MIN	MAX.	
Α	4.80	5.00	0.189	0.196	
В	3.80	4.00	0.150	0.157	
С	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		0.05	BSC	
K	0.10	0.25	0.004	0.009	
М	0°	7°	0°	7°	
Р	5.80	6.20	0.229	0.244	
R	0.25	0.50	0.010	0.019	



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4/4 Version: Preliminary