

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

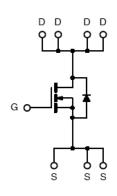
Application

- 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	Α
Pulsed Drain Current		I _{DM}	50	Α
Continuous Source Current (Diode Con	nduction) ^{a,b}	I _S	2.6	А
Maximum Power Dissipation	Ta = 25°C	Ь	2.95	W
	Ta = 75°C	P _D	1.9	VV
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⊖ _{JC}	25	°C/W
Junction to Ambient Thermal Resistance (PCB mounted)	RO _{JA}	50	°C/W

Notes:

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



TSM4886

30V N-Channel MOSFET

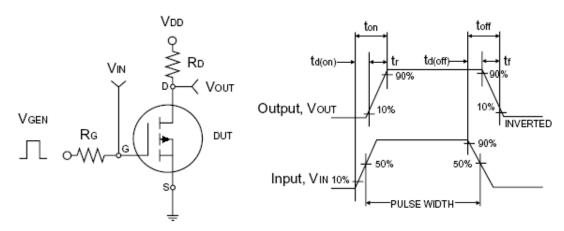


Electrical Specifications (Ta = 25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Тур	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250uA$	BV _{DSS}	30	-		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}		-	±100	nA
Zero Gate Voltage Drain Current	$V_{DS} = 24V, V_{GS} = 0V$	I _{DSS}		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	$V_{GS} = 10V, I_D = 13A$			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	$V_{DS} = 15V, I_D = 13A,$ $V_{GS} = 5V$	Q_gs		6		nC
Gate-Drain Charge	V _{GS} – JV	Q_{gd}		5		
Input Capacitance	\/ - 45\/ \/ - 0\/	C _{iss}		2134		
Output Capacitance	$V_{DS} = 15V, V_{GS} = 0V,$ f = 1.0MHz	C _{oss}		343		pF
Reverse Transfer Capacitance	1 - 1.0IVITZ	C_{rss}		134		
Switching ^c						
Turn-On Delay Time	$V_{DD} = 15V, R_L = 1.0\Omega,$ $I_D = 1A, V_{GEN} = 10V,$	t _{d(on)}		17		
Turn-On Rise Time		t _r		3.5		nC
Turn-Off Delay Time		t _{d(off)}		40		nS
Turn-Off Fall Time	$R_G = 3\Omega$	t _f		6		

Notes:

- a. pulse test: PW \leq 300µS, 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

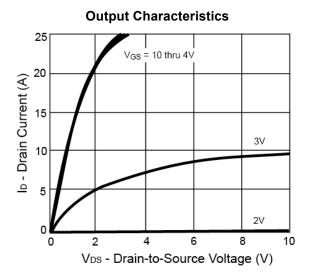




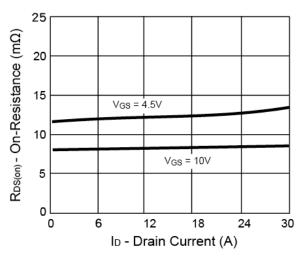




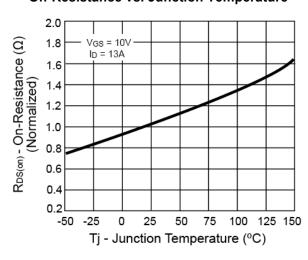
Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)



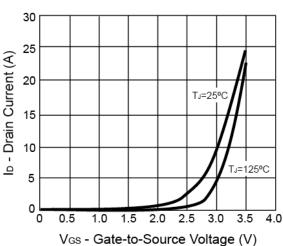
On-Resistance vs. Drain Current



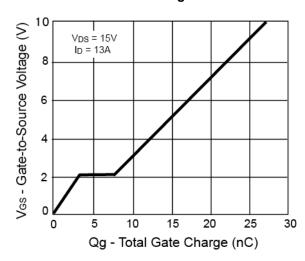
On-Resistance vs. Junction Temperature



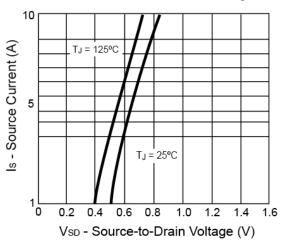
Transfer Characteristics



Gate Charge



Source-Drain Diode Forward Voltage





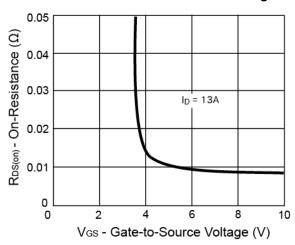




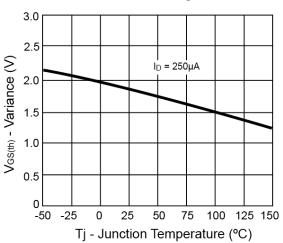


Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

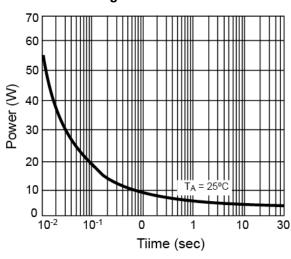
On-Resistance vs. Gate-Source Voltage



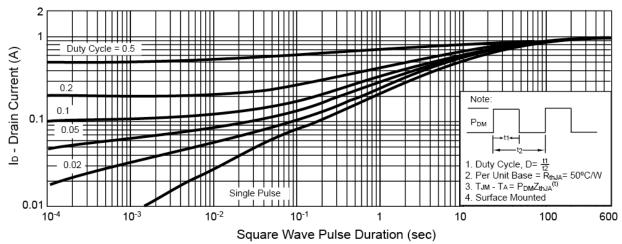
Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient

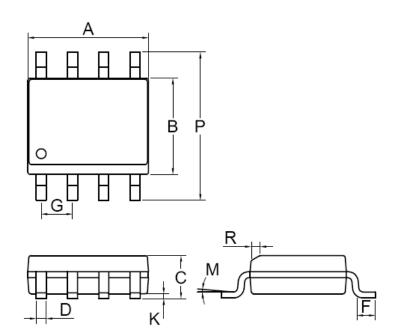






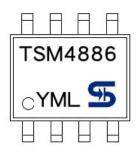


SOP-8 Mechanical Drawing



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	

Marking Diagram



5/6

L = Lot Code

Version: B09



TSM4886 30V N-Channel MOSFET

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.