

**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**

<b>V<sub>DS</sub> (V)</b>	<b>R<sub>D(on)</sub>(mΩ)</b>	<b>I<sub>D</sub> (A)</b>
-30	25 @ V <sub>GS</sub> = -10V	-7.1
	41 @ V <sub>GS</sub> = -4.5V	-5.5

**Features**

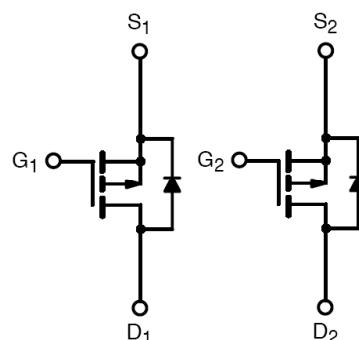
- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On-resistance

**Application**

- Load Switches
- Notebook PCs
- Desktop PCs

**Ordering Information**

<b>Part No.</b>	<b>Package</b>	<b>Packing</b>
TSM4925DCS RL	SOP-8	2.5Kpcs / 13" Reel

**Block Diagram**

**Dual P-Channel MOSFET**
**Absolute Maximum Rating (Ta = 25°C unless otherwise noted)**

<b>Parameter</b>	<b>Symbol</b>	<b>Limit</b>	<b>Unit</b>
Drain-Source Voltage	V <sub>DS</sub>	-30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	-7.1	A
Pulsed Drain Current	I <sub>DM</sub>	-40	A
Continuous Source Current (Diode Conduction) <sup>a,b</sup>	I <sub>S</sub>	-1.7	A
Maximum Power Dissipation	P <sub>D</sub>	2.0	W
		1.3	
Operating Junction Temperature	T <sub>J</sub>	+150	°C
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Thermal Performance**

<b>Parameter</b>	<b>Symbol</b>	<b>Limit</b>	<b>Unit</b>
Junction to Case Thermal Resistance	R<θ <sub>JC</sub>	30	°C/W
Junction to Ambient Thermal Resistance (PCB mounted)	R<θ <sub>JA</sub>	50	°C/W

Notes:

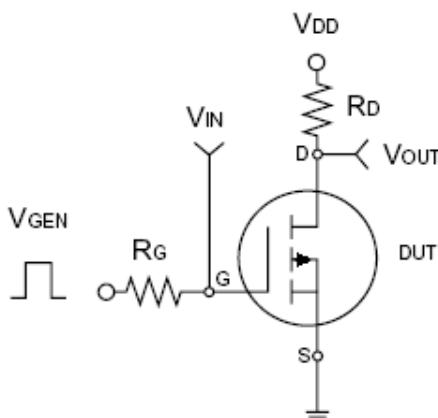
- a. Pulse width limited by the Maximum junction temperature
- b. Surface Mounted on FR4 Board, t ≤ 10 sec.

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

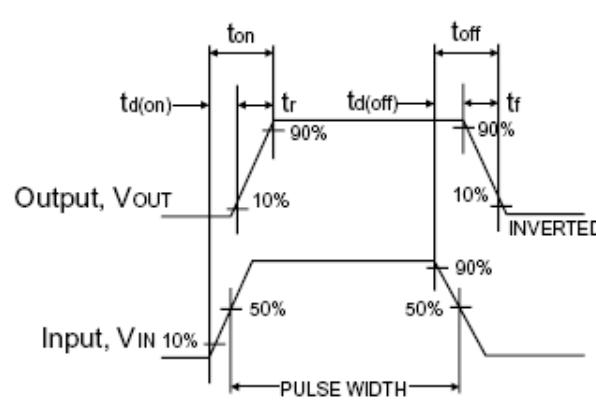
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	BV <sub>DSS</sub>	-30	--	--	V
Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	V <sub>GS(TH)</sub>	-1	--	-3	V
Gate Body Leakage	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V	I <sub>GSS</sub>	--	--	±100	nA
Zero Gate Voltage Drain Current	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V	I <sub>DSS</sub>	--	--	-1.0	μA
On-State Drain Current <sup>a</sup>	V <sub>DS</sub> = -5V, V <sub>GS</sub> = -10V	I <sub>D(ON)</sub>	-40	--	--	A
Drain-Source On-State Resistance <sup>a</sup>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -7.1A	R <sub>DS(ON)</sub>	--	20	25	mΩ
	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5.5A		--	33	41	
Forward Transconductance <sup>a</sup>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -7.1A	g <sub>fs</sub>	--	24	--	S
Diode Forward Voltage	I <sub>S</sub> = -1.7A, V <sub>GS</sub> = 0V	V <sub>SD</sub>	--	-0.8	-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	V <sub>DS</sub> = -15V, I <sub>D</sub> = -7.1A, V <sub>GS</sub> = -10V	Q <sub>g</sub>	--	33	70	nC
Gate-Source Charge		Q <sub>gs</sub>	--	5.8	--	
Gate-Drain Charge		Q <sub>gd</sub>	--	8.6	--	
Input Capacitance	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1.0MHz	C <sub>iss</sub>	--	1573	1900	pF
Output Capacitance		C <sub>oss</sub>	--	319	--	
Reverse Transfer Capacitance		C <sub>rss</sub>	--	211	295	
<b>Switching<sup>c</sup></b>						
Turn-On Delay Time	V <sub>DD</sub> = -15V, R <sub>L</sub> = 15Ω, I <sub>D</sub> = -1A, V <sub>GEN</sub> = -10V, R <sub>G</sub> = 6Ω	t <sub>d(on)</sub>	--	10	15	nS
Turn-On Rise Time		t <sub>r</sub>	--	15	25	
Turn-Off Delay Time		t <sub>d(off)</sub>	--	110	170	
Turn-Off Fall Time		t <sub>f</sub>	--	70	110	

Notes:

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



Switching Test Circuit



Switching Waveforms



TAIWAN  
SEMICONDUCTOR



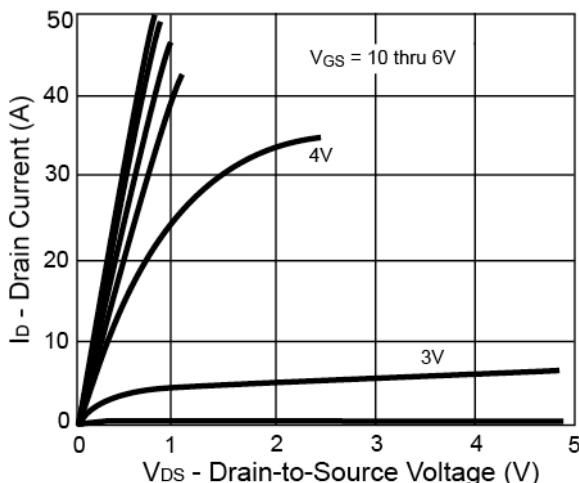
RoHS  
COMPLIANCE

**TSM4925D**

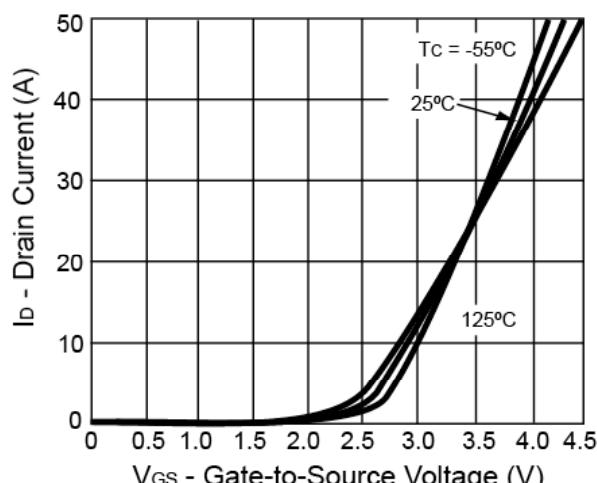
30V Dual P-Channel MOSFET

**Electrical Characteristics Curve** ( $T_a = 25^\circ\text{C}$ , unless otherwise noted)

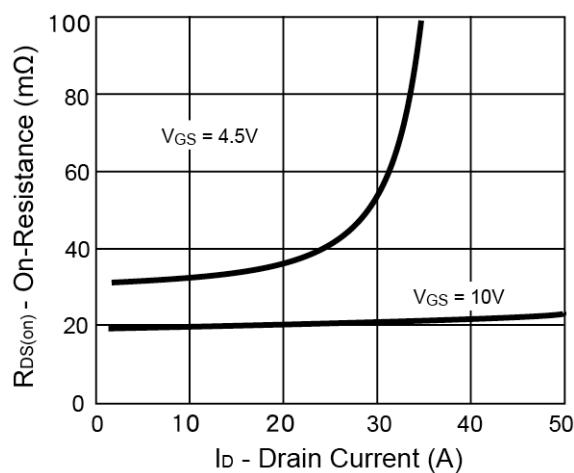
**Output Characteristics**



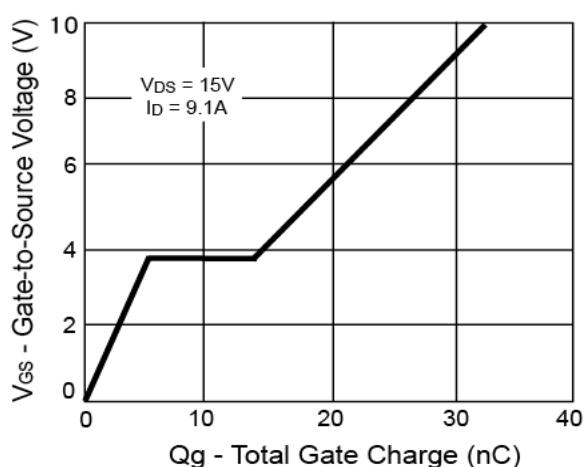
**Transfer Characteristics**



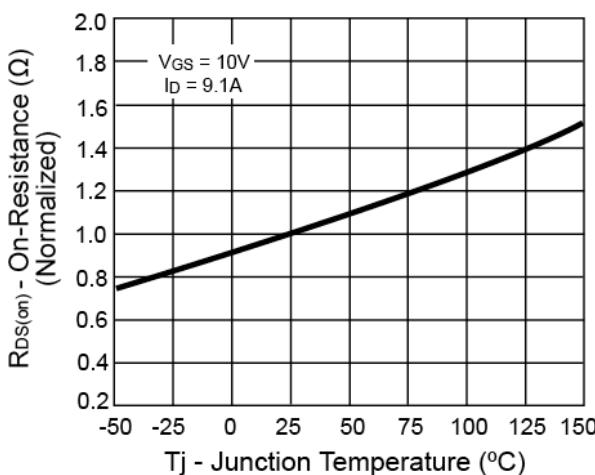
**On-Resistance vs. Drain Current**



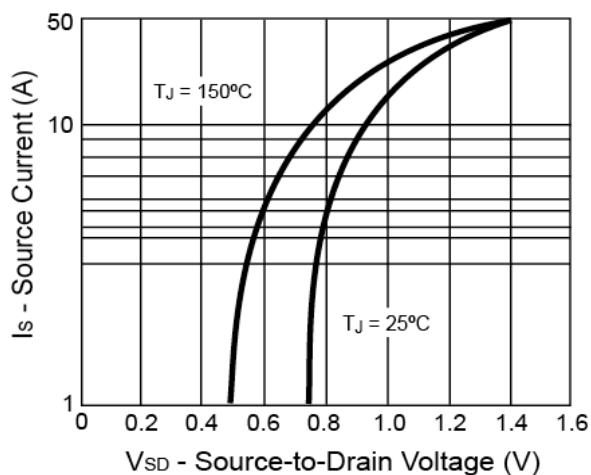
**Gate Charge**



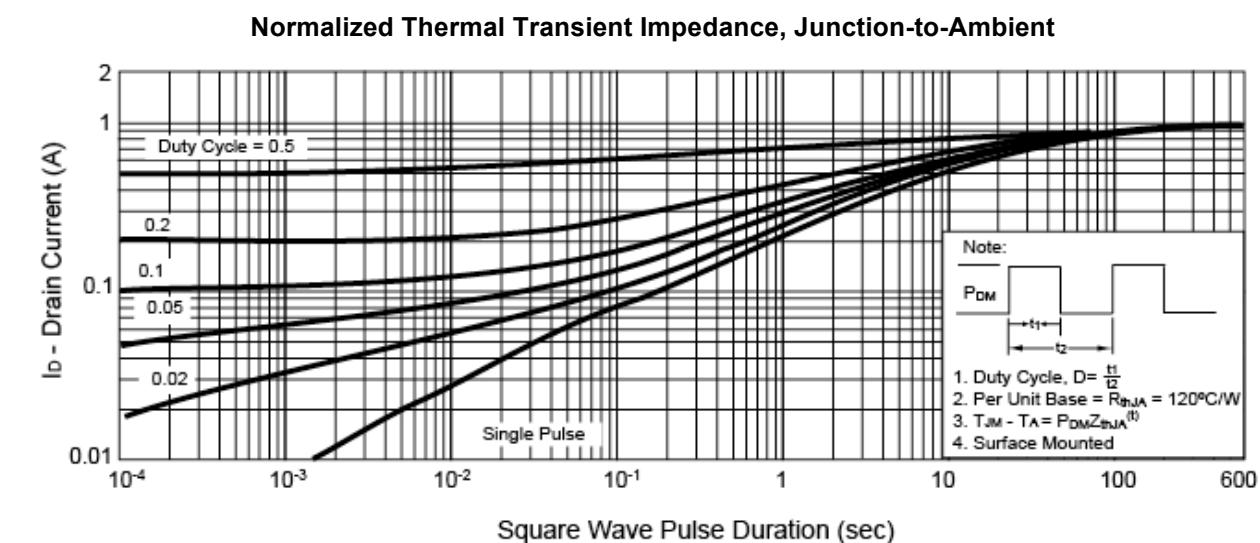
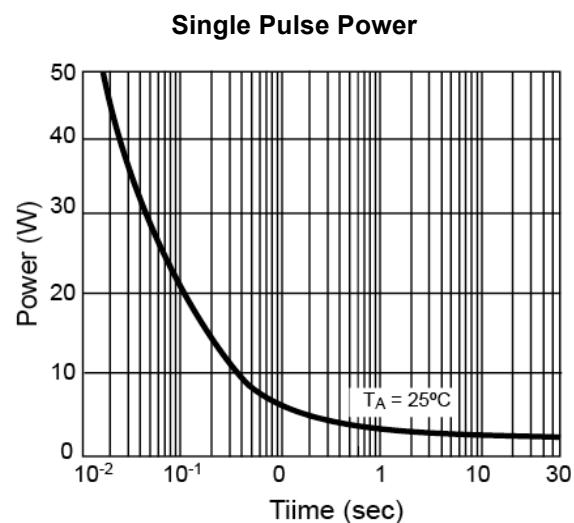
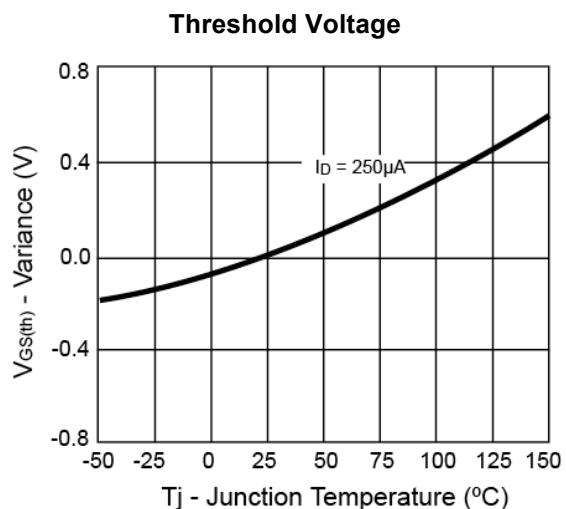
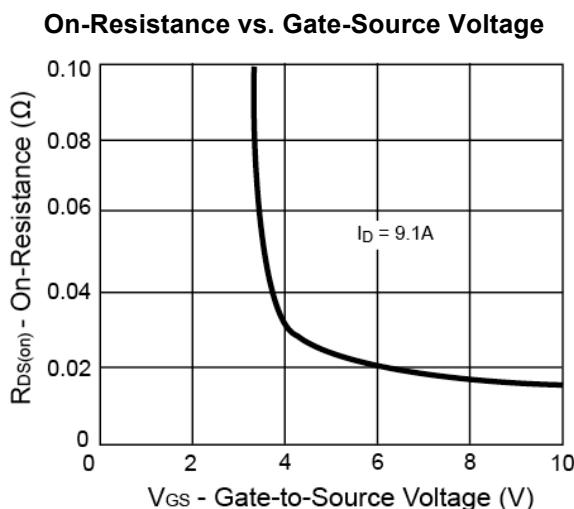
**On-Resistance vs. Junction Temperature**



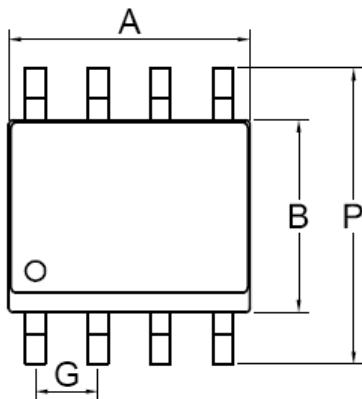
**Source-Drain Diode Forward Voltage**



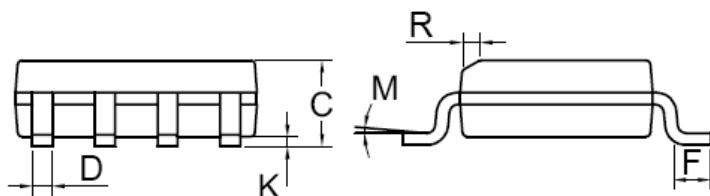
**Electrical Characteristics Curve** ( $T_A = 25^\circ\text{C}$ , unless otherwise noted)



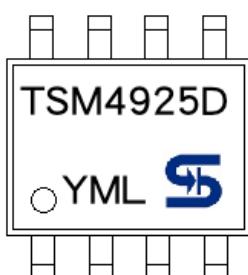
## SOP-8 Mechanical Drawing



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=Apl, E=May, F=Jun, G=Jul, H=Aug,

I=Sep, J=Oct, K=Nov, L=Dec)

**L** = Lot Code

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- Консультации по применению компонента;
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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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