



**THE DATASHEET OF
TSM3911DCX6 RFG**



SOT-26



Pin Definition:

- | | |
|-------------|-------------|
| 1. Gate 1 | 6. Drain 1 |
| 2. Source 2 | 5. Source 1 |
| 3. Gate 2 | 4. Drain 2 |

Key Parameter Performance

Parameter	Value	Unit
V_{DS}	-20	V
$R_{DS(on)}$ (max)	$V_{GS} = -4.5V$	140
	$V_{GS} = -2.5V$	200
	$V_{GS} = -1.8V$	300
Q_g	15.23	nC

Features

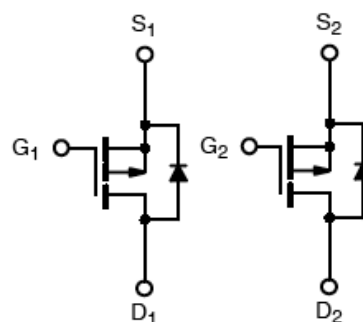
- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On-resistance

Ordering Information

Part No.	Package	Packing
TSM3911DCX6 RFG	SOT-26	3kpcs / 7" Reel

Note: "G" denotes for Halogen- and Antimony-free as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds

Block Diagram



Dual P-Channel MOSFET

Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-2.2	A
Pulsed Drain Current	I_{DM}	-8	A
Continuous Source Current (Diode Conduction) ^(Note 1,2)	I_S	-0.72	A
Maximum Power Dissipation	P_D	$T_A=25^{\circ}C$	1.15
		$T_A=70^{\circ}C$	0.73
Operating Junction Temperature	T_J	+150	$^{\circ}C$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	$^{\circ}C$

Thermal Performance

Parameter	Symbol	Limit	Unit
Junction to Case Thermal Resistance	$R_{\theta_{JC}}$	30	$^{\circ}C/W$
Junction to Ambient Thermal Resistance (PCB mounted)	$R_{\theta_{JA}}$	80	$^{\circ}C/W$

Electrical Specifications

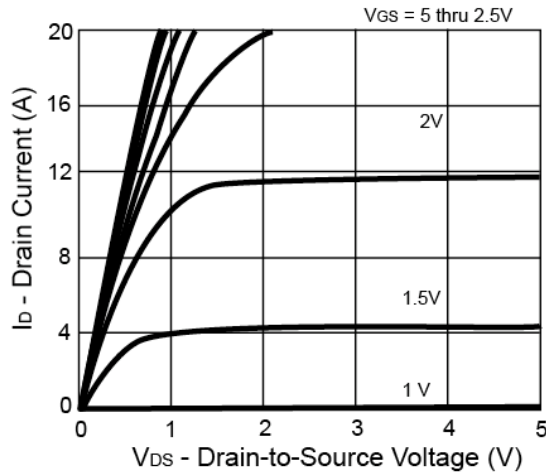
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static (Note 3)						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = -250\mu A$	BV_{DSS}	-20	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	$V_{GS(TH)}$	-0.45	--	-0.95	V
Gate Body Leakage	$V_{GS} = \pm 8V, V_{DS} = 0V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS} = -16V, V_{GS} = 0V$	I_{DSS}	--	--	-1.0	μA
On-State Drain Current	$V_{DS} = -5V, V_{GS} = -5V$	$I_{D(ON)}$	-5	--	--	A
Drain-Source On-State Resistance	$V_{GS} = -4.5V, I_D = -2.2A$	$R_{DS(ON)}$	--	115	140	m Ω
	$V_{GS} = -2.5V, I_D = -1.8A$		--	163	200	
	$V_{GS} = -1.8V, I_D = -1A$		--	220	300	
Forward Transconductance	$V_{DS} = -5V, I_D = -2.2A$	g_{fs}	--	5	--	S
Diode Forward Voltage	$I_S = -1.05A, V_{GS} = 0V$	V_{SD}	--	-0.8	-1.2	V
Dynamic (Note 4)						
Total Gate Charge	$V_{DS} = -6V, I_D = -2.8A,$ $V_{GS} = -4.5V$	Q_g	--	15.23	--	nC
Gate-Source Charge		Q_{gs}	--	5.49	--	
Gate-Drain Charge		Q_{gd}	--	2.74	--	
Input Capacitance	$V_{DS} = -6V, V_{GS} = 0V,$ $f = 1.0MHz$	C_{iss}	--	882.51	--	pF
Output Capacitance		C_{oss}	--	145.54	--	
Reverse Transfer Capacitance		C_{rss}	--	97.26	--	
Switching (Note 4,5)						
Turn-On Delay Time	$V_{DD} = -6V, R_L = 6\Omega,$ $I_D = -1A, V_{GEN} = -4.5V,$ $R_G = 6\Omega$	$t_{d(on)}$	--	17.28	--	ns
Turn-On Rise Time		t_r	--	3.73	--	
Turn-Off Delay Time		$t_{d(off)}$	--	36.05	--	
Turn-Off Fall Time		t_f	--	6.19	--	

Notes:

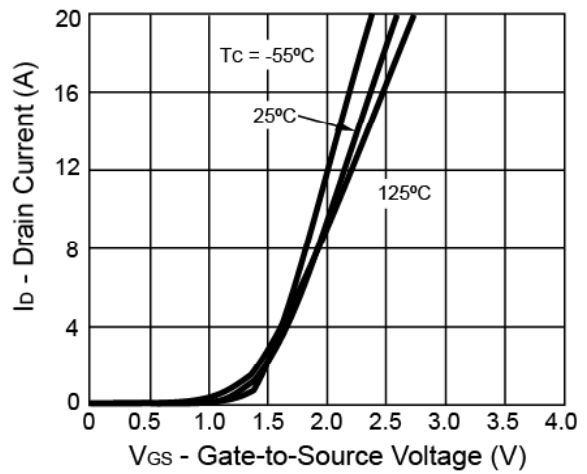
1. Pulse width limited by the Maximum junction temperature
2. Surface Mounted on FR4 Board, $t \leq 5$ sec.
3. pulse test: $PW \leq 300\mu S$, duty cycle $\leq 2\%$
4. For DESIGN AID ONLY, not subject to production testing.
5. Switching time is essentially independent of operating temperature.

Electrical Characteristics Curves

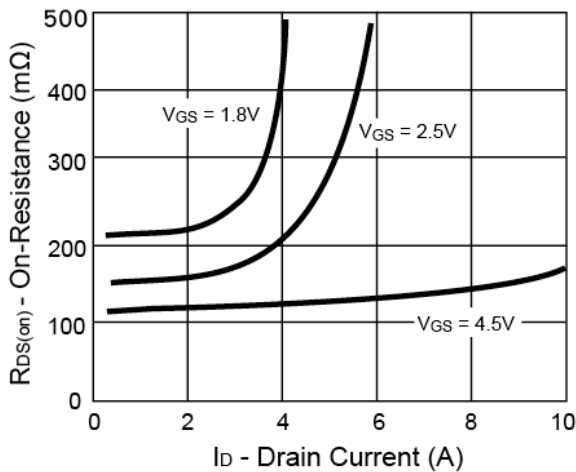
Output Characteristics



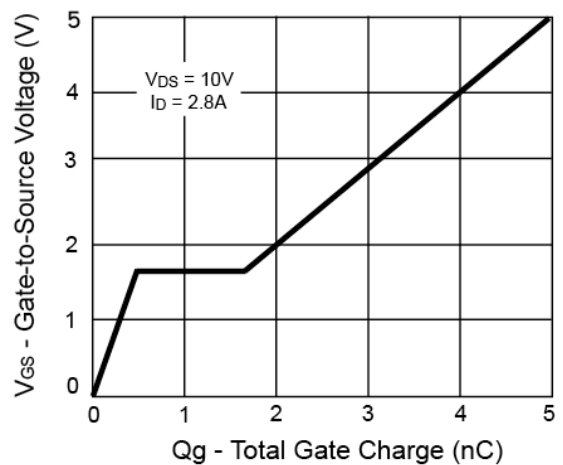
Transfer Characteristics



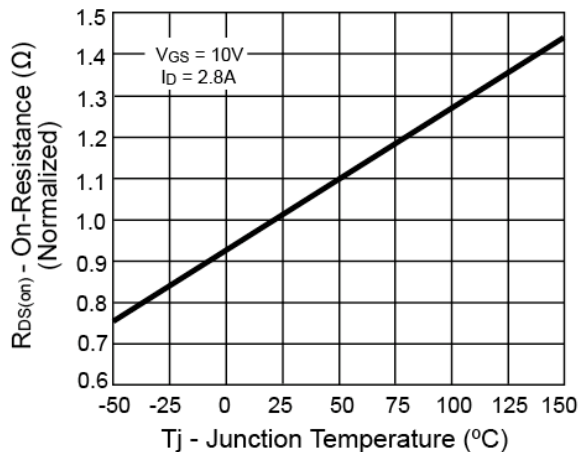
On-Resistance vs. Drain Current



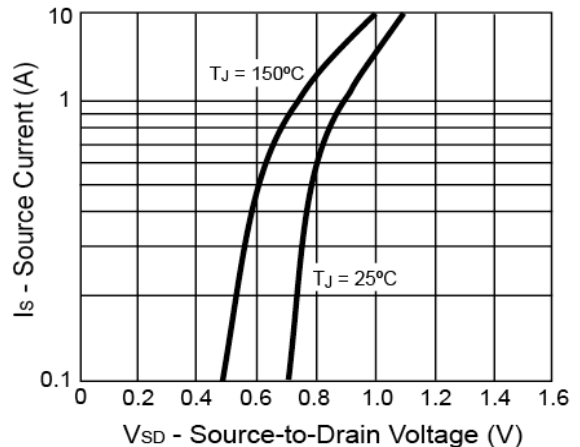
Gate Charge



On-Resistance vs. Junction Temperature

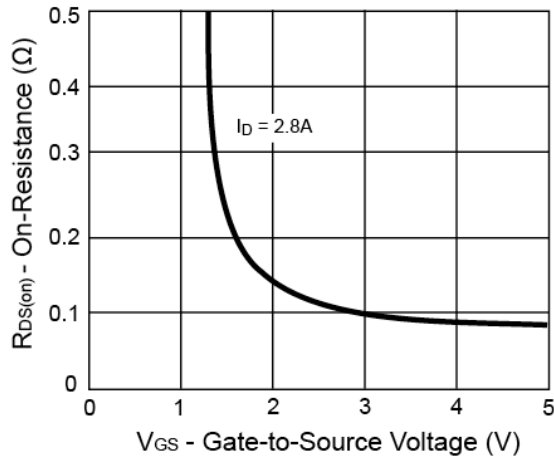


Source-Drain Diode Forward Voltage

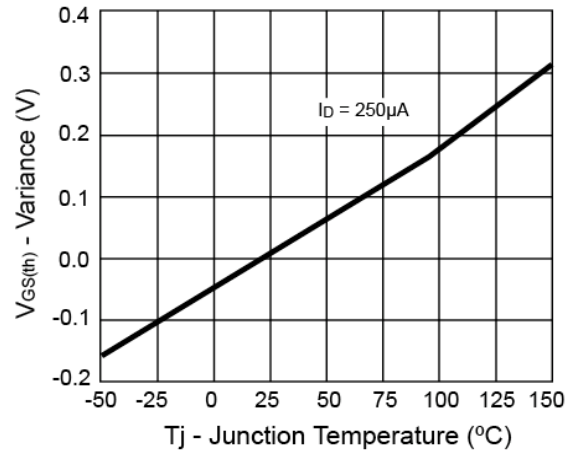


Electrical Characteristics Curves

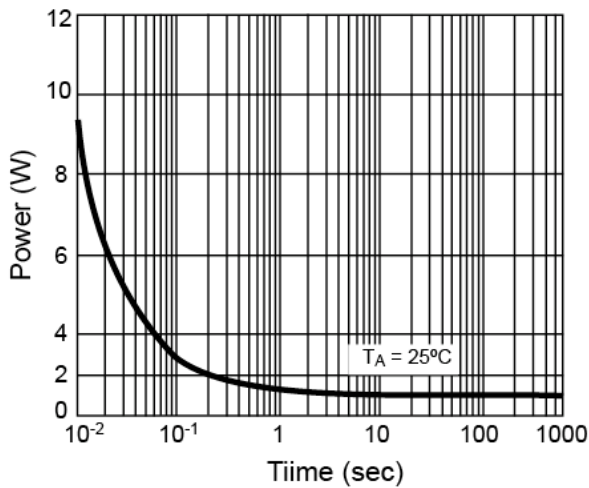
On-Resistance vs. Gate-Source Voltage



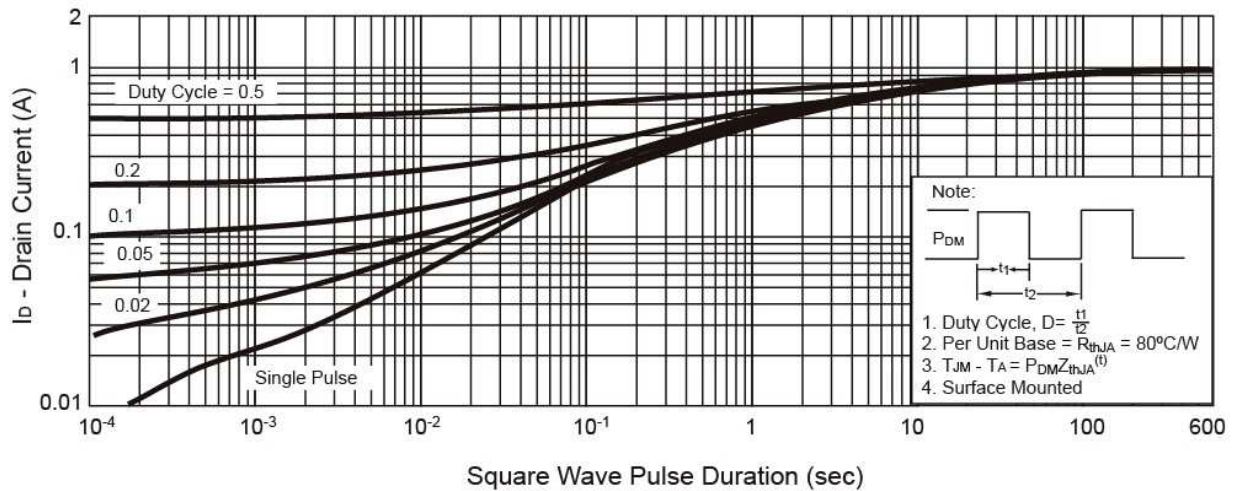
Threshold Voltage



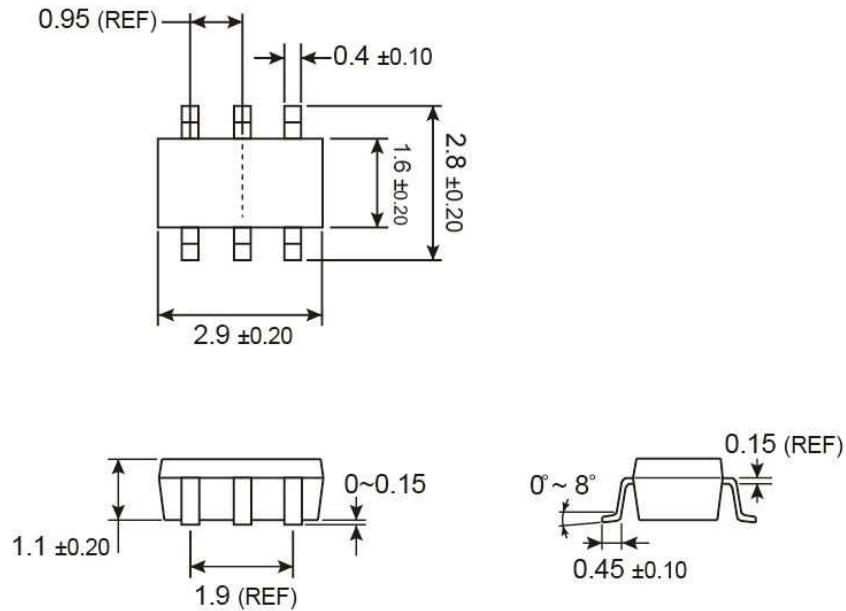
Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient

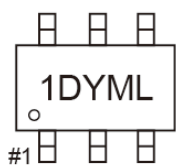


SOT-26 Mechanical Drawing



Unit: Millimeters

Marking Diagram



- 1D** = Device Code
- 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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