TSM2307CX

30V P-Channel MOSFET

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance - Junction to Case	$R_{\Theta JC}$	75	℃/W
Thermal Resistance - Junction to Ambient	$R_{\Theta JA}$	130	℃/W

Electrical Specifications (T_C = 25℃ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = -250μA	BV_{DSS}	-30	--	--	V
Drain-Source On-State Resistance	V_{GS} = -10V, I_D = -3A	$R_{DS(ON)}$	--	76	95	mΩ
	V_{GS} = -4.5V, I_D = -2A		--	103	140	mΩ
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250μA	$V_{GS(TH)}$	-1	--	-3	V
Zero Gate Voltage Drain Current	V_{DS} = -30V, V_{GS} = 0V	I_{DSS}	--	--	-1.0	μA
Gate Body Leakage	V_{GS} = ±20V, V_{DS} = 0V	I_{GSS}	--	--	±100	nA
Forward Transconductance (Note 4)	V_{DS} = -10V, I_D = -6A	g_{fs}	--	5	--	S
Diode Forward Voltage	I_S = -1.7V, V_{GS} = 0V	V_{SD}			-1.2	V
Dynamic						
Total Gate Charge (Note 3,4)	V_{DS} = -15V, I_D = -3A, V_{GS} = -10V	Q_g	--	10	15	nC
Gate-Source Charge (Note 3,4)		Q_{gs}	--	1.9	--	
Gate-Drain Charge (Note 3,4)		Q_{gd}	--	2	--	
Input Capacitance	V_{DS} = -30V, V_{GS} = 0V, f = 1.0MHz	C_{iss}	--	565	--	pF
Output Capacitance		C_{oss}	--	126	--	
Reverse Transfer Capacitance		C_{rss}	--	75	--	
Switching						
Turn-On Delay Time (Note 3,4))	V_{DD} = -15V, R_L = 15Ω, I_D = -1A, V_{GEN} = -10V, R_G =6Ω	$t_{d(on)}$	--	10	20	ns
Turn-On Rise Time (Note 3,4)		t_r	--	9	20	
Turn-Off Delay Time (Note 3,4)		$t_{d(off)}$	--	27	50	
Turn-Off Fall Time (Note 3,4)		t_f	--	7	16	

Note:

1.Limited by maximum junction temperature

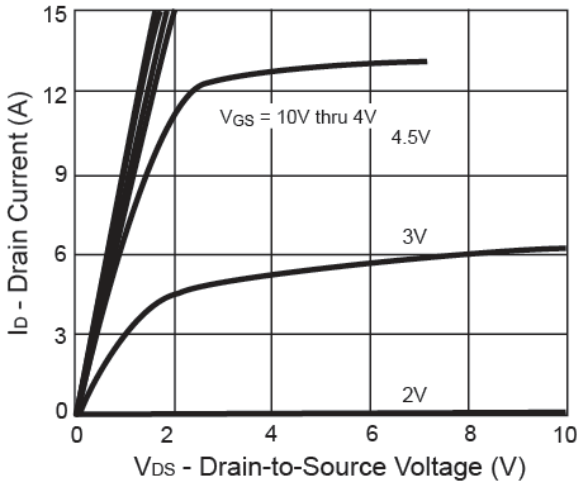
2.Pulse width limited by safe operating area

3.Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%

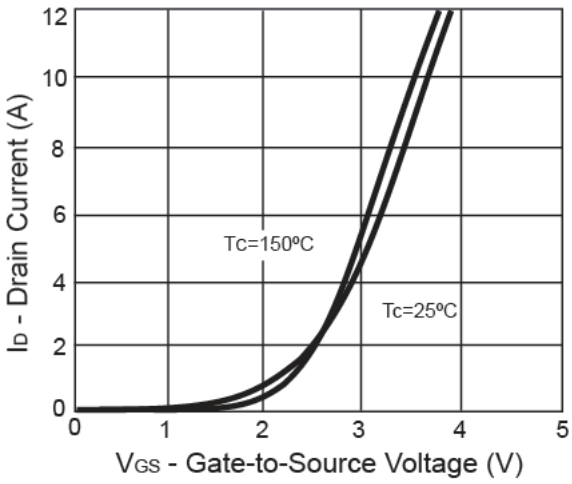
4.Switching time is essentially independent of operating temperature.

Electrical Characteristics Curve

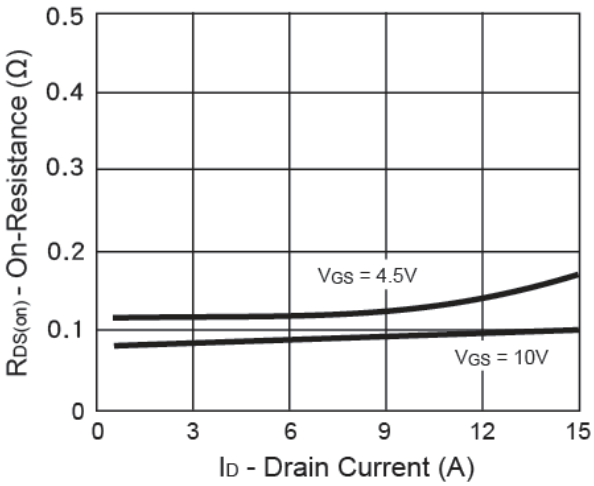
Output Characteristics



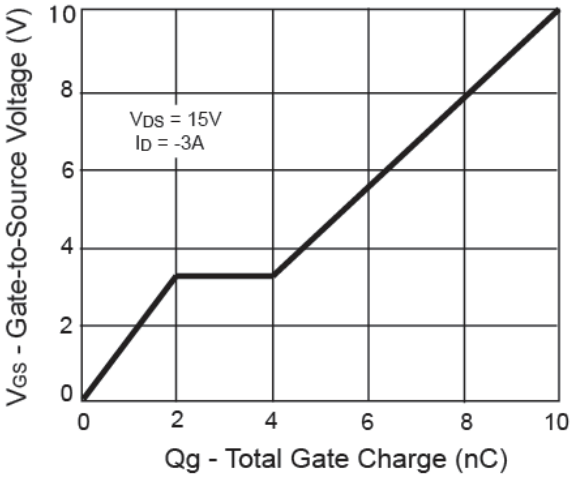
Transfer Characteristics



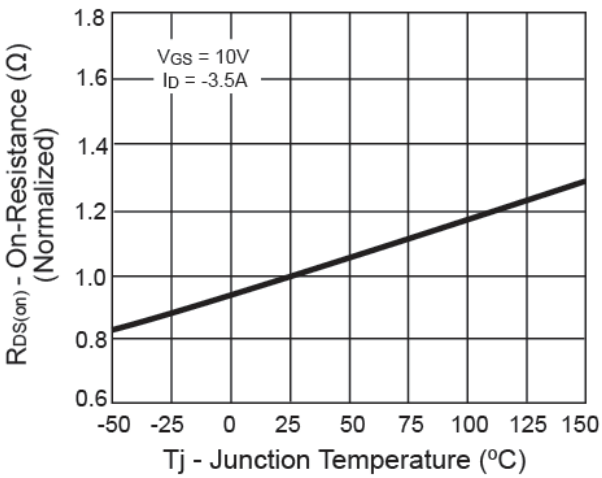
On-Resistance vs. Drain Current



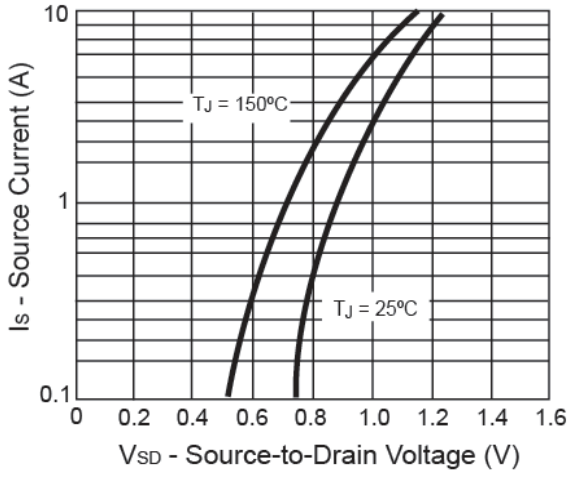
Gate Charge



On-Resistance vs. Junction Temperature

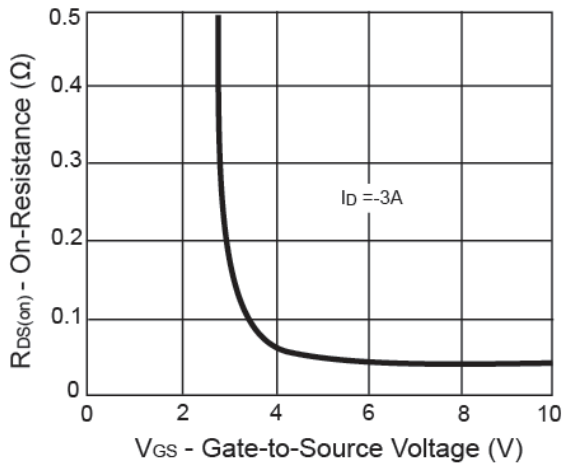


Source-Drain Diode Forward Voltage

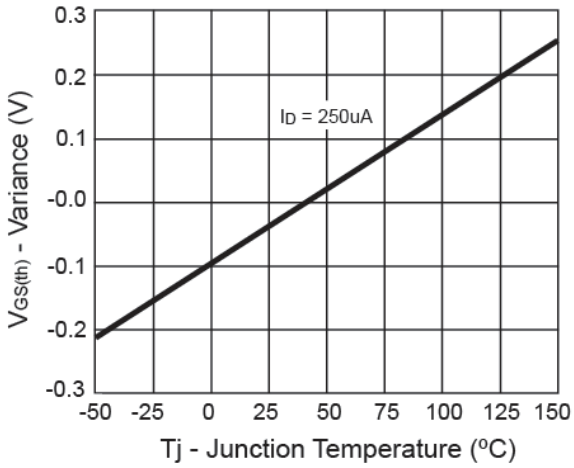


Electrical Characteristics Curve

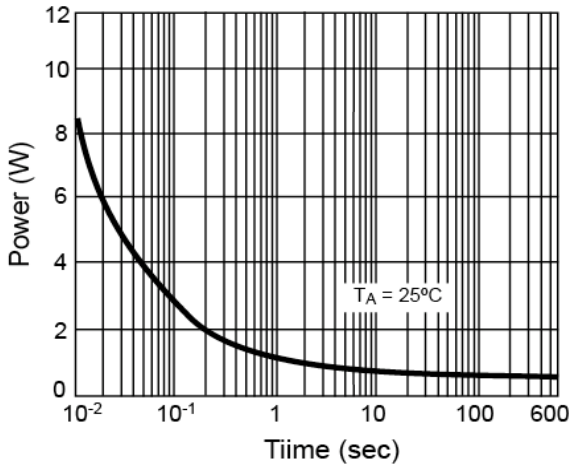
On-Resistance vs. Gate-Source Voltage



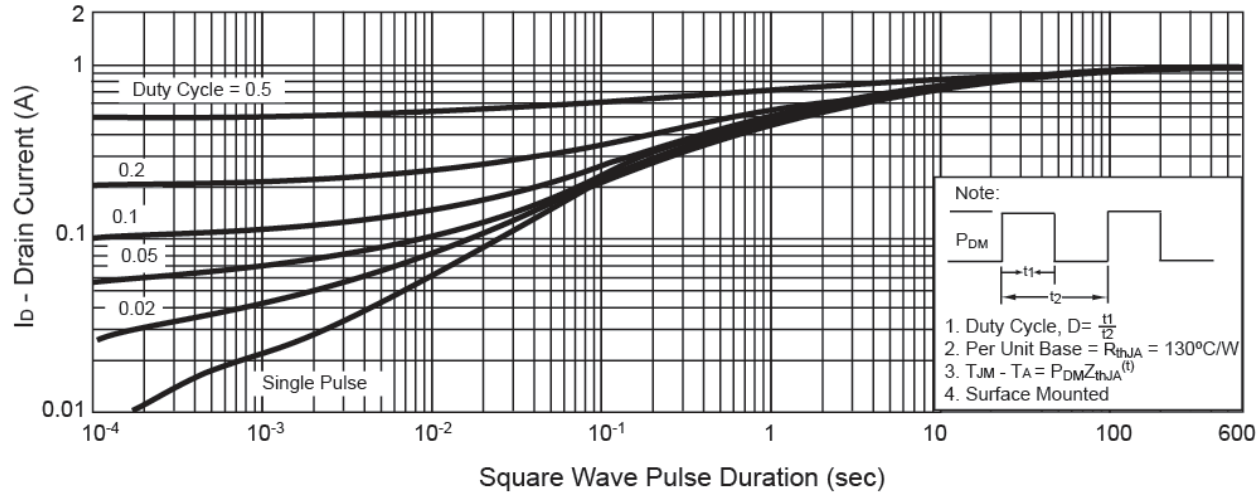
Threshold Voltage



Single Pulse Power

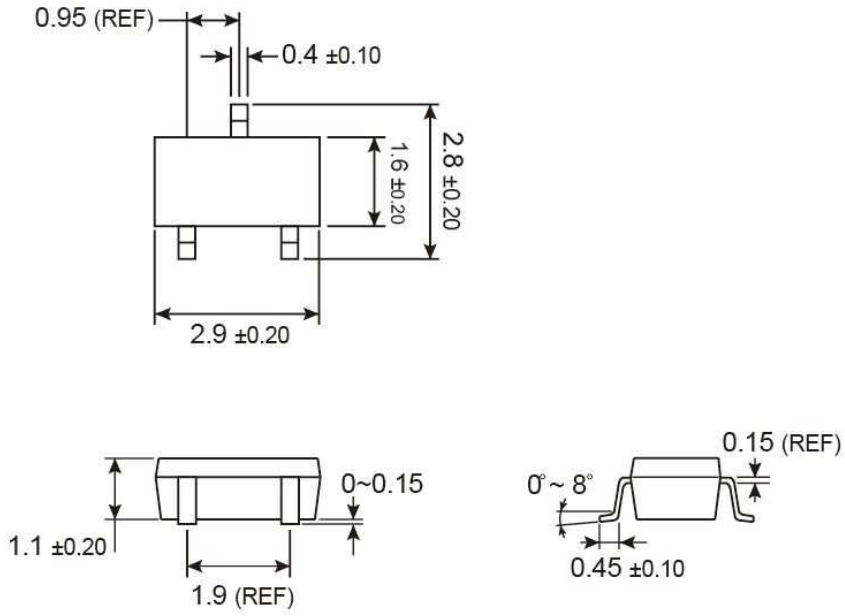


Normalized Thermal Transient Impedance, Junction-to-Ambient



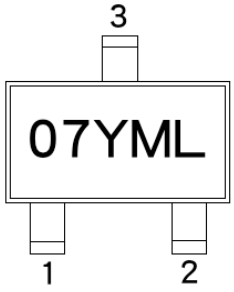
Pb-Free RoHS COMPLIANT

SOT-23 Mechanical Drawing



Unit: Millimeters

Marking Diagram



07 = 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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