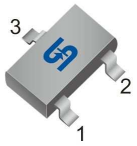
TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

TSM2328

100V N-Channel MOSFET

SOT-23



Pin Definition:
1. Gate
2. Source
3. Drain

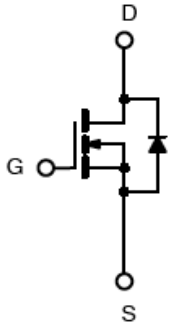
Key Parameter Performance

Parameter	Value	Unit
V_{DS}	100	V
$R_{DS(on)}$ (max)	250	mΩ
Q_g	11.1	nC

Features

- Low $R_{DS(ON)}$ 250mΩ (Max.)
- Low gate charge typical @ 11.1nC (Typ.)
- High performance trench technology

Block Diagram



N-Channel MOSFET

Ordering Information

Part No.	Package	Packing
TSM2328CX RFG	SOT-23	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

Absolute Maximum Rating (T_A=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	1.5	A
Pulsed Drain Current (Note 1)	I_{DM}	6	A
Continuous Source Current (Diode Conduction)	I_S	0.6	A
Total Power Dissipation @ T_A = 25°C	P_D	1.38	W
Operating Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance - Junction to Foot	$R\Theta_{JF}$	55	°C/W
Thermal Resistance - Junction to Ambient	$R\Theta_{JA}$	100	°C/W

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

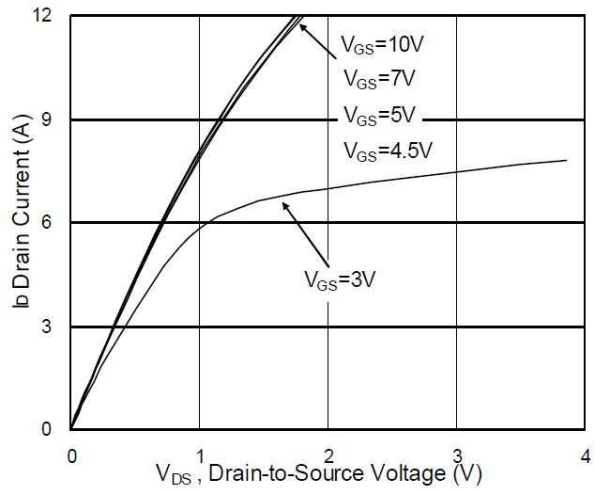
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	BV_{DSS}	100	--	--	V
Drain-Source On-State Resistance	V_{GS} = 10V, I_D = 1.5A	$R_{DS(ON)}$	--	--	250	mΩ
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	$V_{GS(TH)}$	1.0	--	2.5	V
Zero Gate Voltage Drain Current	V_{DS} = 80V, V_{GS} = 0V	I_{DSS}	--	--	1	μA
Gate Body Leakage	V_{GS} = ±20V, V_{DS} = 0V	I_{GSS}	--	--	±100	nA
On-State Drain Current	V_{DS} = 5V, V_{GS} = 10V	$I_{D(ON)}$	6	--	--	A
Forward Transfer Conductance	V_{DS} = 15V, I_D = 1.5A	g_{fs}	--	4	--	S
Diode Forward Voltage	I_S = 1A, V_{GS} = 0V	V_{SD}	--	1.2	--	V
Dynamic (Note 2)						
Total Gate Charge	V_{DS} = 80V, I_D = 1.5A, V_{GS} = 5V	Q_g	--	11.1	--	nC
Gate-Source Charge		Q_{gs}	--	4.4	--	
Gate-Drain Charge		Q_{gd}	--	3	--	
Input Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz	C_{iss}	--	975	--	pF
Output Capacitance		C_{oss}	--	38	--	
Reverse Transfer Capacitance		C_{rss}	--	27	--	
Switching (Note 3)						
Turn-On Delay Time	V_{DD} = 30V, I_D = 1A, V_{GEN} = 10V, R_L =30Ω, R_G =6Ω	$t_{d(on)}$	--	9	--	ns
Turn-On Rise Time		t_r	--	9.4	--	
Turn-Off Delay Time		$t_{d(off)}$	--	26.8	--	
Turn-Off Fall Time		t_f	--	2.6	--	

Note:

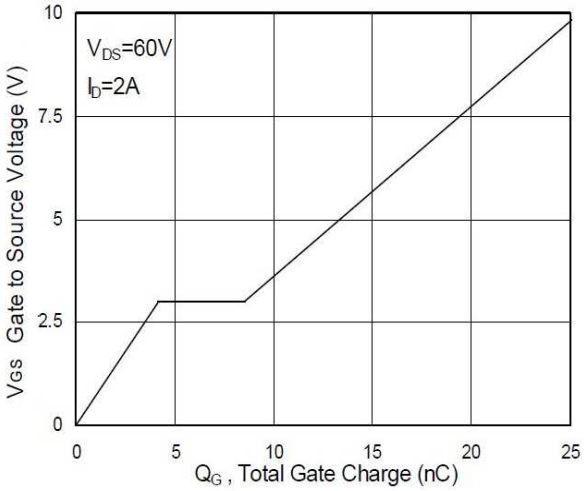
1. Limited by maximum junction temperature.
2. Pulse test: pulse width ≤300μs, duty cycle ≤2%.
3. Guaranteed by design, not subject to production testing

Electrical Characteristics Curve

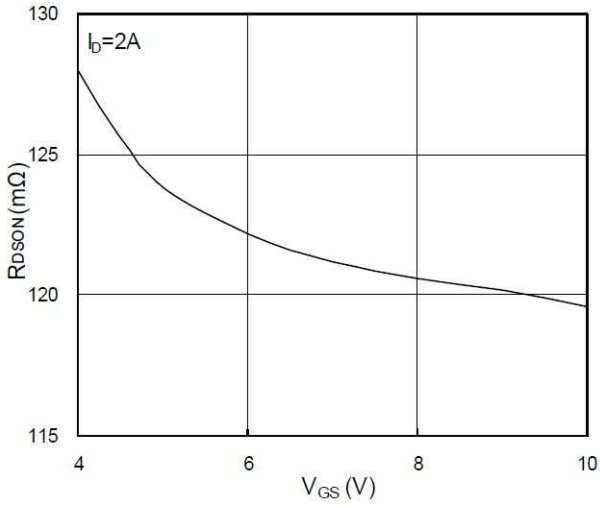
Typical Output Characteristic



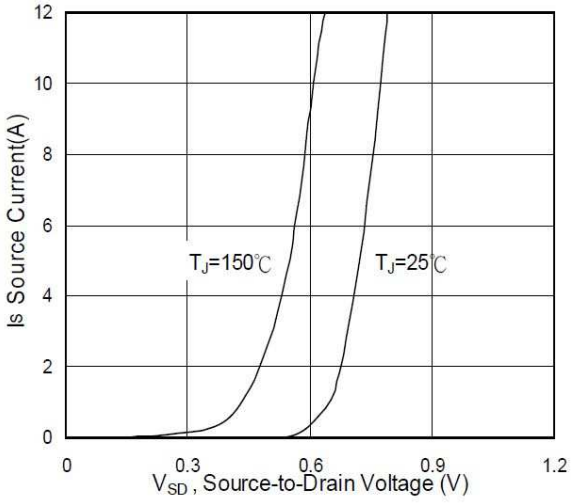
Gate Charge



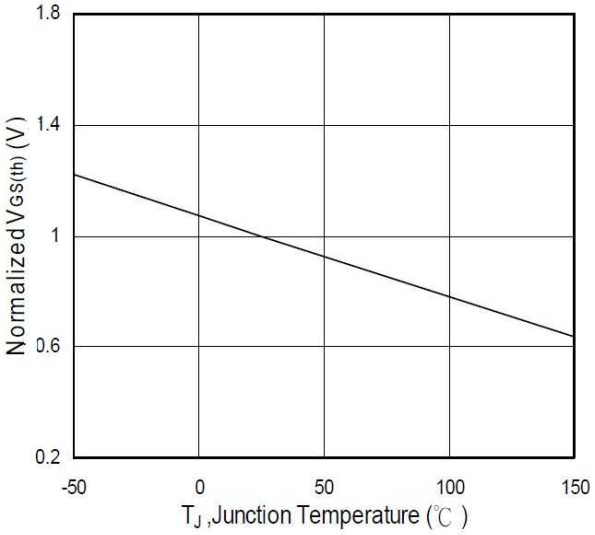
On-Resistance vs. Gate-Source Voltage



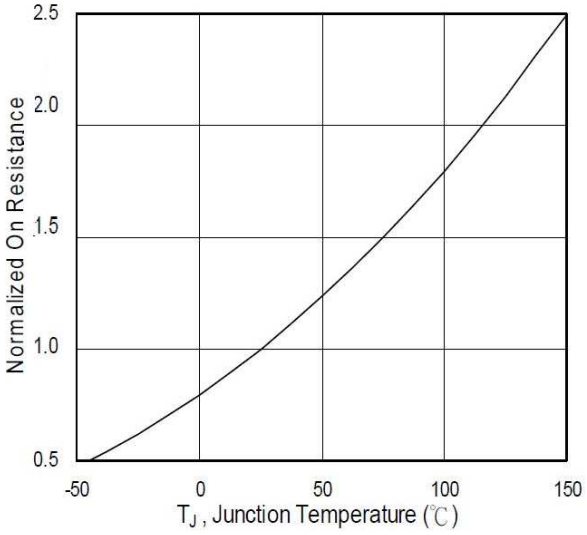
Source-Drain Diode Forward Voltage



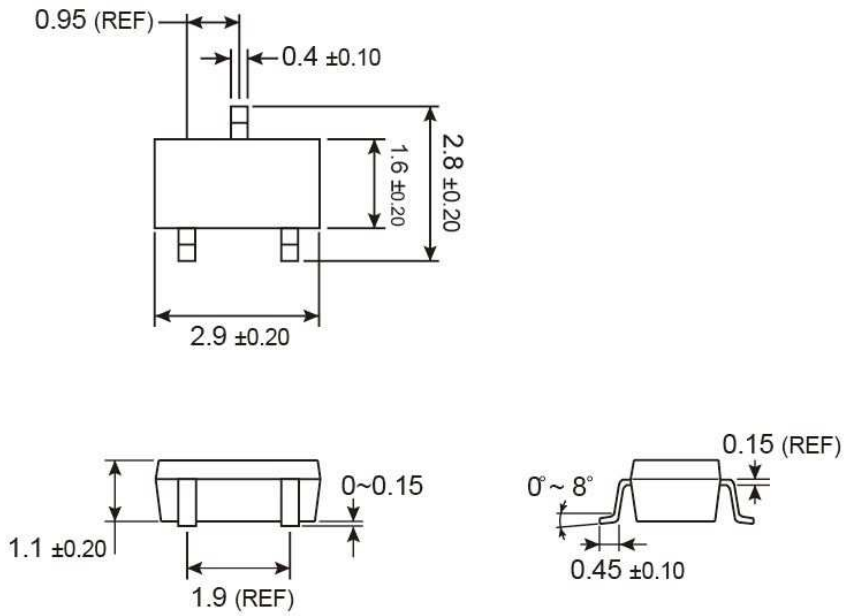
Normalized $V_{GS(TH)}$ vs. Junction Temperature



Normalized $R_{DS(ON)}$ vs. Junction Temperature

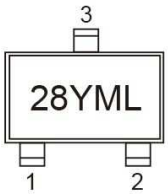


SOT-23 Mechanical Drawing



Unit: Millimeters

Marking Diagram



Y = Year Code
M = Month Code for Halogen Free Product
(**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apl, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
L = Lot Code

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