



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	m Ω
Q_g	11.1	nC

Features

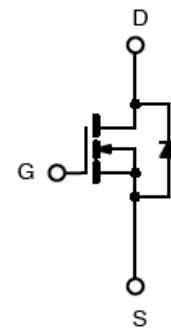
- Low $R_{DS(ON)}$ 250m Ω (Max.)
- Low gate charge typical @ 11.1nC (Typ.)
- High performance trench technology

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

Block Diagram



N-Channel MOSFET

Absolute Maximum Rating ($T_A=25^\circ\text{C}$ 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 @ $T_A = 25^\circ\text{C}$	P_D	1.38	W
Operating Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance - Junction to Foot	$R_{\theta_{JF}}$	55	$^\circ\text{C}/\text{W}$
Thermal Resistance - Junction to Ambient	$R_{\theta_{JA}}$	100	$^\circ\text{C}/\text{W}$

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

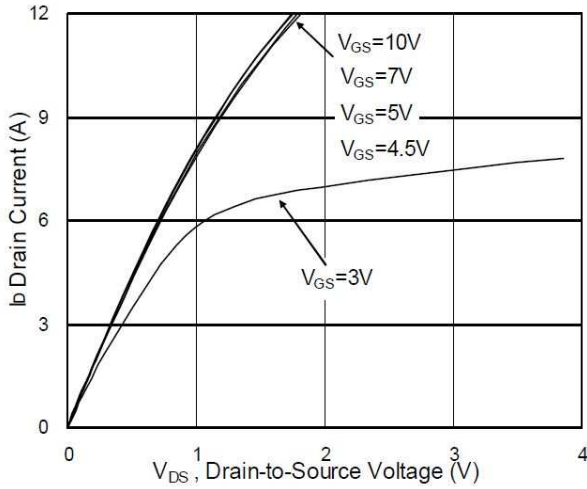
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	BV _{DSS}	100	--	--	V
Drain-Source On-State Resistance	V _{GS} = 10V, I _D = 1.5A	R _{DS(ON)}	--	--	250	mΩ
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	V _{GS(TH)}	1.0	--	2.5	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:

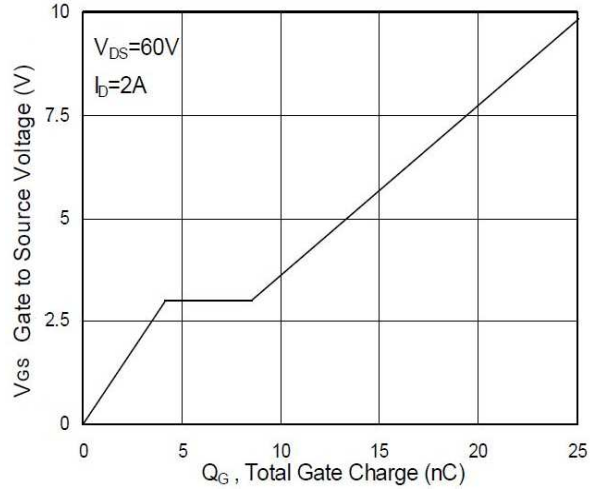
- Limited by maximum junction temperature.
- Pulse test: pulse width ≤300μs, duty cycle ≤2%.
- Guaranteed by design, not subject to production testing

Electrical Characteristics Curve

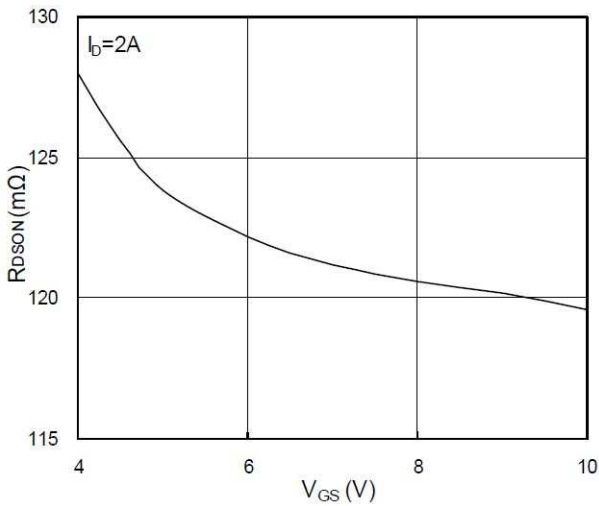
Typical Output Characteristic



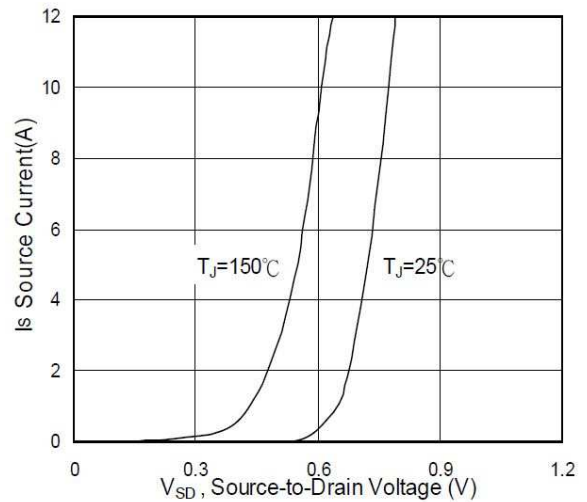
Gate Charge



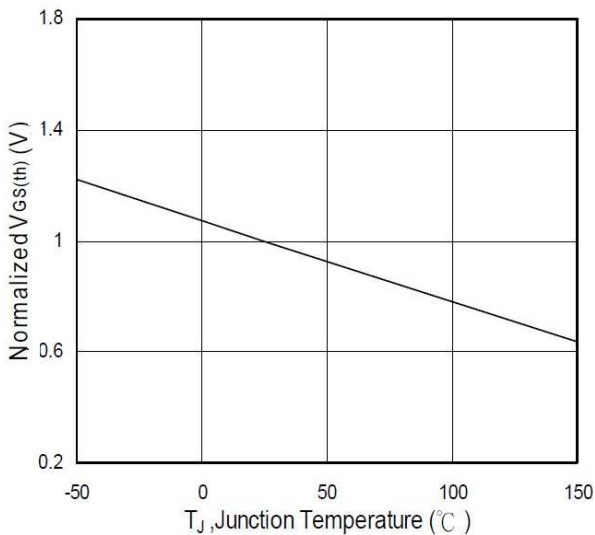
On-Resistance vs. Gate-Source Voltage



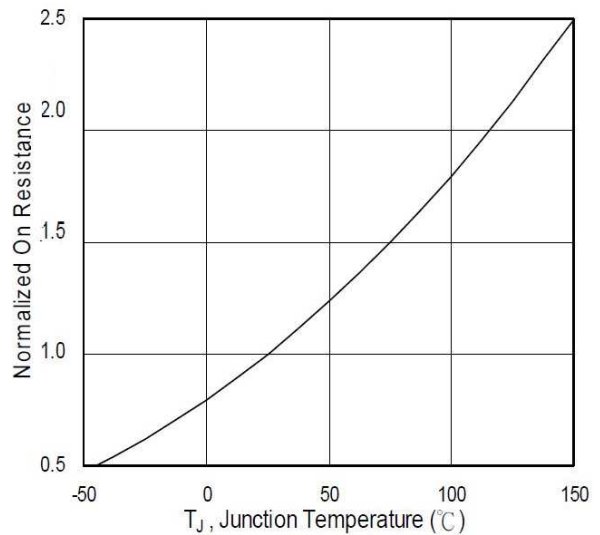
Source-Drain Diode Forward Voltage



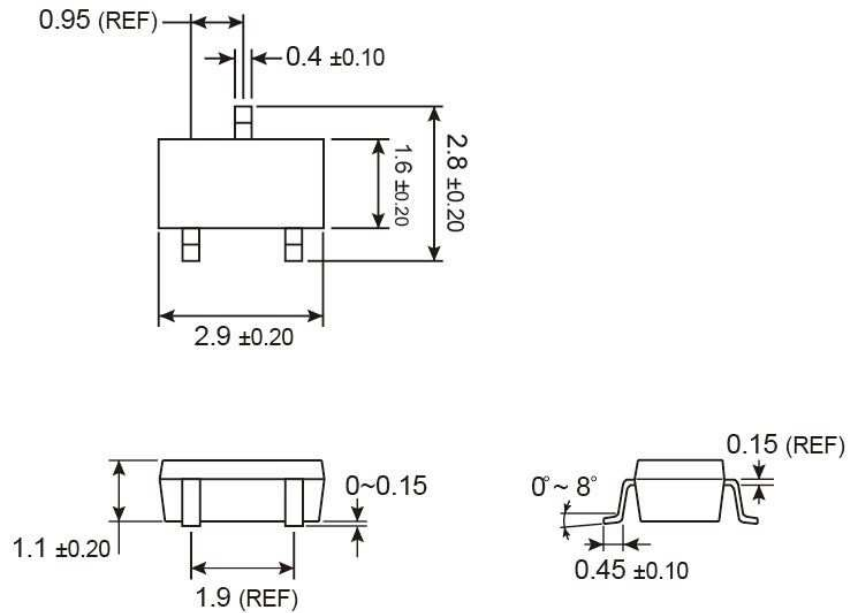
Normalized $V_{GS(th)}$ vs. Junction Temperature



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

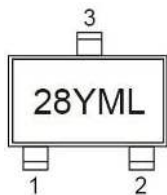


SOT-23 Mechanical Drawing



Unit: Millimeters

Marking Diagram



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

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