

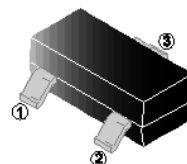
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SMS9573-C is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the small power switching and load switch applications.

The SMS9573-C meet the RoHS and Green Product requirement with full function reliability approved.

SOT-23



FEATURES

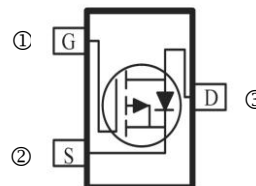
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Green Device Available

MARKING

9573

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMS9573-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹ @ $V_{GS} = -10\text{V}$	I_D	$T_A=25^\circ\text{C}$	-1.7
		$T_A=70^\circ\text{C}$	-1.4
Pulsed Drain Current ²	I_{DM}	-7	A
Maximum Power Dissipation ³	P_D	1	W
Operating Junction & Storage Temperature	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$
Thermal Resistance Ratings			
Thermal Resistance Junction-ambient ¹	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	80	

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	-60	-	-	V	V _{GS} =0V, I _D = -250μA
Drain-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{DS} =0V, V _{GS} = ±20V
Gate-Source Leakage Current	I _{DSS}	T _J =25°C	-	-1	μA	V _{GS} =0V, V _{DS} = -48V
		T _J =55°C	-	-5		V _{GS} =0V, V _{DS} = -48V
Gate-Threshold Voltage	V _{GS(th)}	-1	-	-2.5	V	V _{DS} =V _{GS} , I _D = -250μA
Forward Transconductance	g _{fs}	-	5.9	-	S	V _{DS} = -5V, I _D = -1.5A
Static Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	180	mΩ	V _{GS} = -10V, I _D = -1.5A
		-	-	266		V _{GS} = -4.5V, I _D = -1A
Total Gate Charge	Q _g	-	3.4	-	nC	V _{GS} = -4.5V
Gate-Source Charge	Q _{gs}	-	1.72	-		V _{DS} = -20V
Gate-Drain Charge	Q _{gd}	-	1	-		I _D = -1.5A
Turn-on Delay Time	T _{d(on)}	-	2.6	-	nS	V _{DS} = -15V I _D = -1A V _{GS} = -10V R _G =3.3Ω
Rise Time	T _r	-	19.1	-		
Turn-off Delay Time	T _{d(off)}	-	21.9	-		
Fall Time	T _f	-	19.6	-		
Input Capacitance	C _{iss}	-	412	-	pF	V _{GS} =0V V _{DS} = -15V f=1MHz
Output Capacitance	C _{oss}	-	36	-		
Reverse Transfer Capacitance	C _{rss}	-	11	-		
Source-Drain Diode						
Continuous Current ^{1 4}	I _S	-	-	-1.7	A	V _G =V _D =0V, Force Current
Pulsed Current ^{2 4}	I _{SM}	-	-	-7		
Diode Forward Voltage ²	V _{SD}	-	-	-1.2	V	V _{GS} =0V, I _S = -1A

Notes:

1. The data tested by surface mounted on a 1 inch² FR4 board with 2OZ copper.
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.
3. The power dissipation is limited by 150°C junction temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

CHARACTERISTIC CURVES

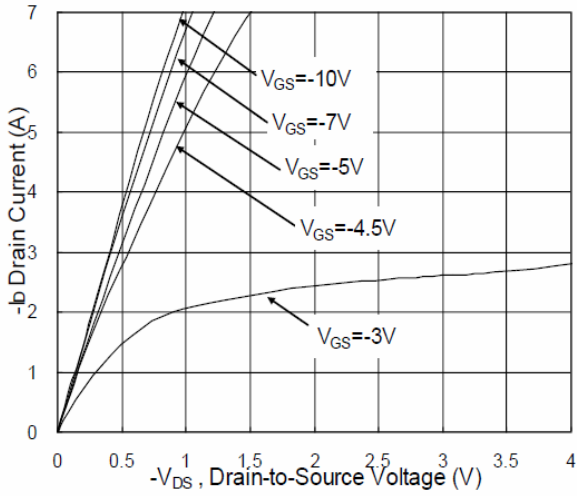


Fig.1 Typical Output Characteristics

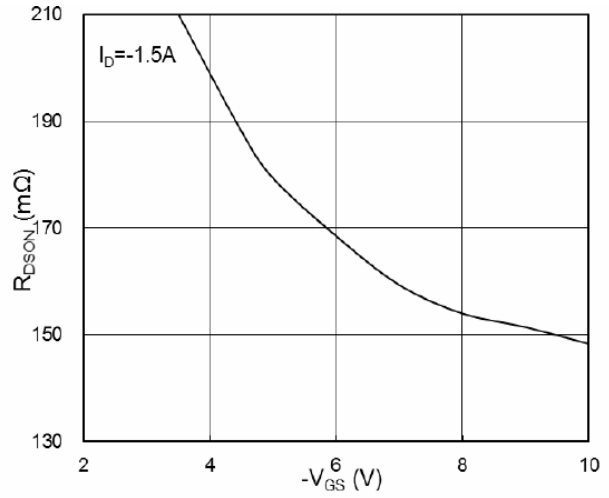


Fig.2 On-Resistance v.s Gate-Source

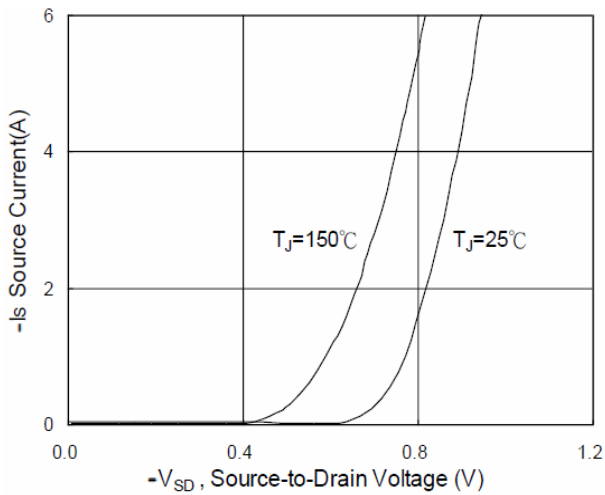


Fig.3 Forward Characteristics Of Reverse

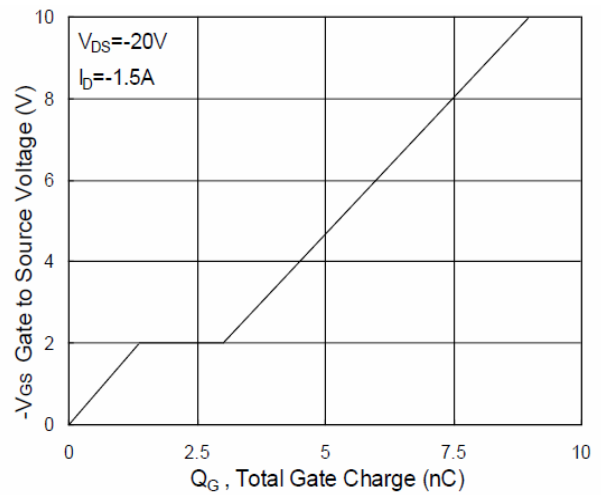


Fig.4 Gate-Charge Characteristics

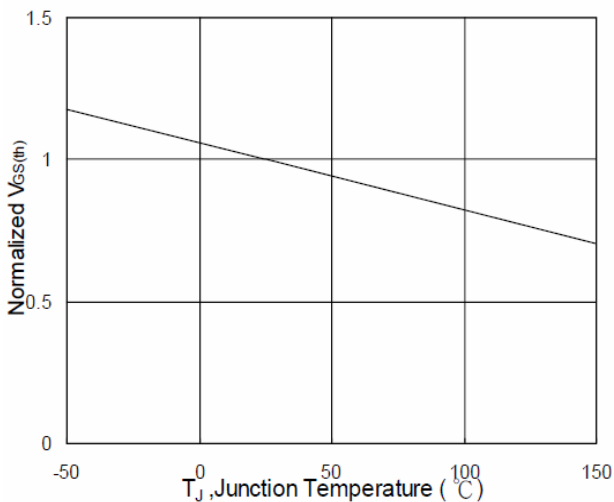


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

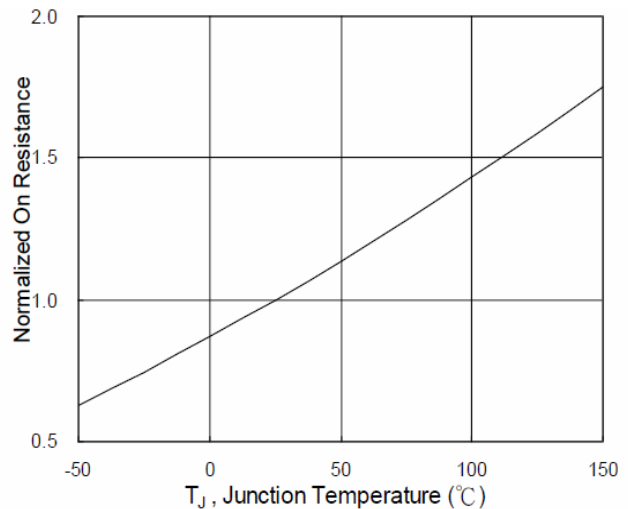


Fig.6 Normalized $R_{DS(ON)}$ v.s T_J

CHARACTERISTIC CURVES

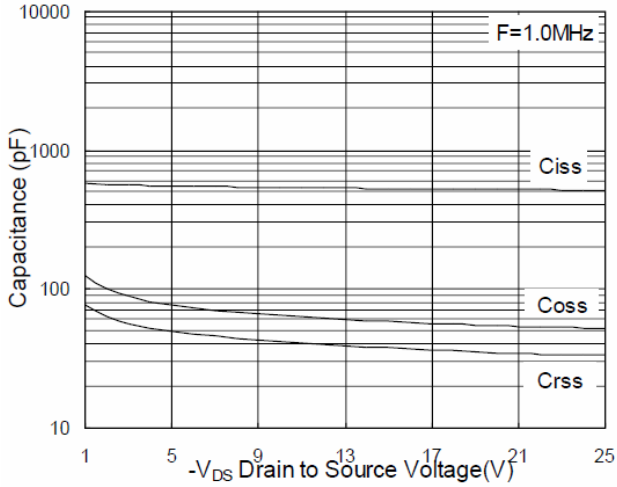


Fig.7 Capacitance

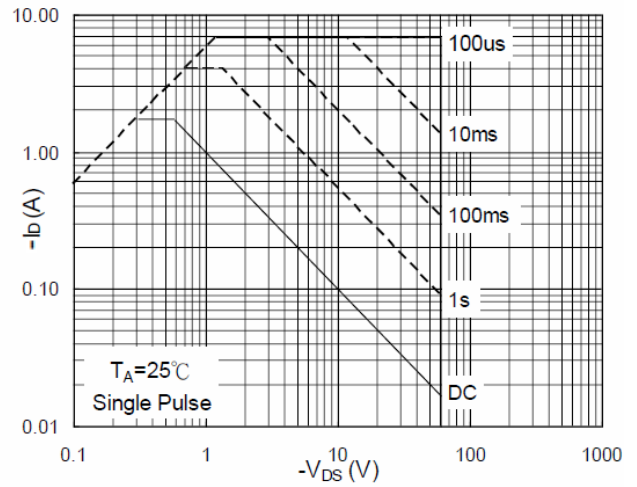


Fig.8 Safe Operating Area

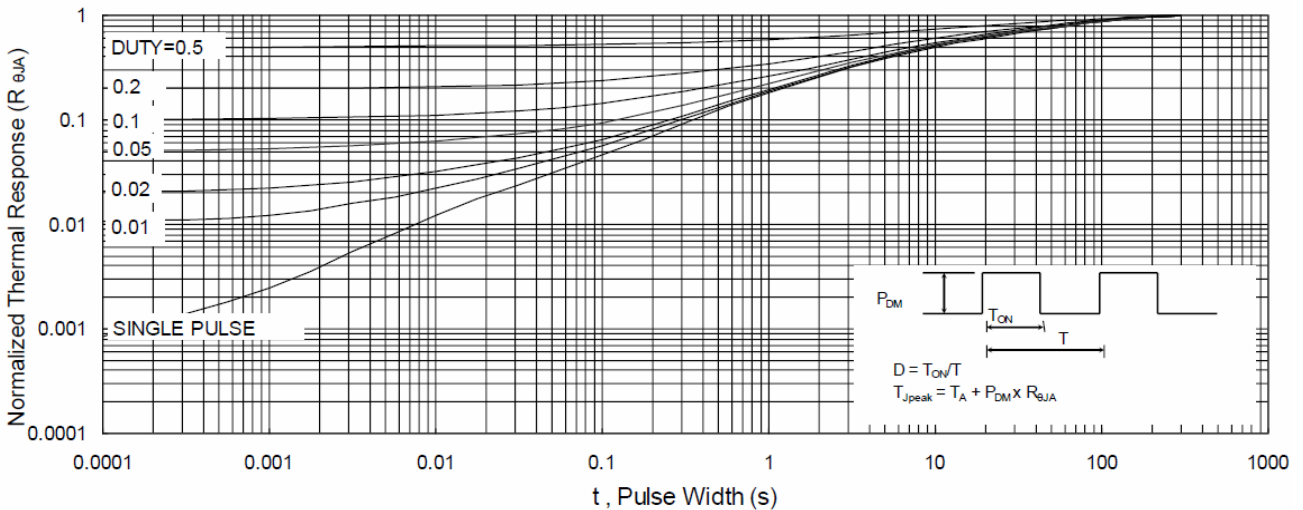


Fig.9 Normalized Maximum Transient Thermal Impedance

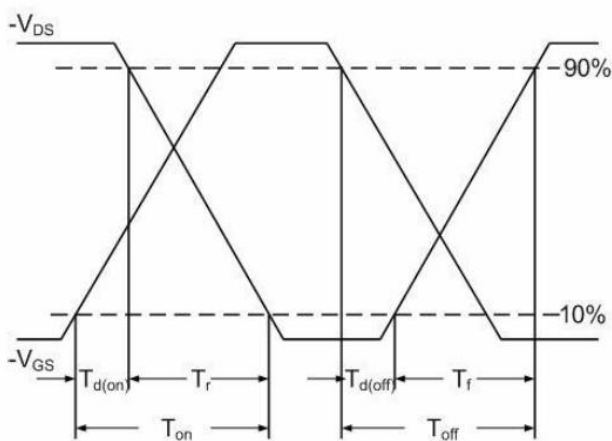


Fig.10 Switching time waveform

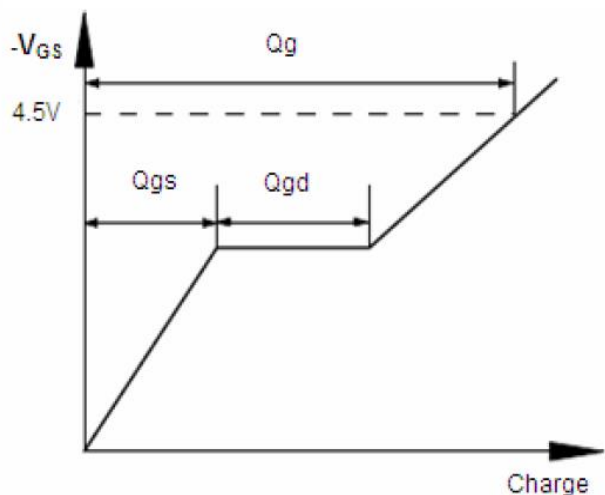
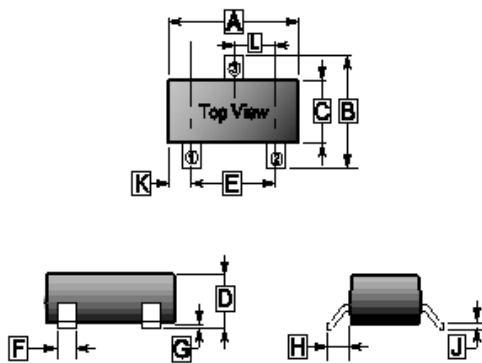


Fig.11 Gate Charge waveform

PACKAGE OUTLINE DIMENSIONS

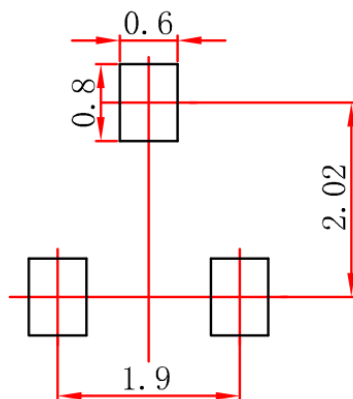
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REF.	Millimeter	
	Min.	Max.
A	2.65	3.10
B	2.10	3.00
C	1.10	1.80
D	0.89	1.40
E	1.70	2.30
F	0.28	0.55
G	0	0.18
H	0.55 REF.	
J	0.05	0.26
K	0.60 REF.	
L	0.95 TYP.	

MOUNTING PAD LAYOUT

SOT-23



*Dimensions in millimeters