

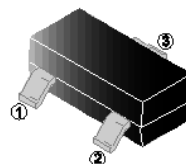
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SMS7P02-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 SMS7P02-C meet the RoHS and Green Product requirement with full function reliability approved.

SOT-23



FEATURES

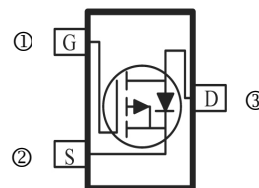
- Fast Switching
- Green Device Available

MARKING

2307

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMS7P02-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}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-7	A
Pulsed Drain Current ¹	I_{DM}	-23.8	A
Power Dissipation	P_D	1	W
Operating Junction & Storage Temperature	T_J, T_{STG}	-55~150	$^\circ\text{C}$
Thermal Resistance Ratings			
Thermal Resistance Junction-ambient	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Thermal Resistance Junction-Case	$R_{\theta JC}$	80	

ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	-20	-	-	V	V _{GS} =0V, I _D = -250μA
Gate-Threshold Voltage	V _{GS(th)}	-0.4	-	-1	V	V _{DS} =V _{GS} , I _D = -250μA
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{DS} =0V, V _{GS} = ±12V
Drain-Source Leakage Current	I _{DSS}	-	-	-1	μA	V _{GS} =0V, V _{DS} = -16V
Static Drain-Source On-Resistance	R _{DS(ON)}	-	-	21	mΩ	V _{GS} = -4.5V, I _D = -4A
		-	-	28		V _{GS} = -2.5V, I _D = -3A
		-	-	35		V _{GS} = -1.8V, I _D = -1.5A
Forward Transconductance	g _{fs}	-	21	-	S	V _{DS} = -5V, I _D = -4A
Total Gate Charge	Q _g	-	27.3	-	nC	V _{GS} = -4.5V V _{DS} = -15V I _D = -4A
Gate-Source Charge	Q _{gs}	-	3.6	-		
Gate-Drain Charge	Q _{gd}	-	6.5	-		
Turn-on Delay Time	T _{d(on)}	-	9.2	-	nS	V _{GS} = -4.5V V _{DD} = -10V I _D = -4A R _G =3.3Ω
Rise Time	T _r	-	59	-		
Turn-off Delay Time	T _{d(off)}	-	99	-		
Fall Time	T _f	-	71	-		
Input Capacitance	C _{iss}	-	2280	-	pF	V _{GS} =0V V _{DS} = -15V f=1MHz
Output Capacitance	C _{oss}	-	220	-		
Reverse Transfer Capacitance	C _{rss}	-	187	-		
Source-Drain Diode						
Continuous Current	I _S	-	-	-4.7	A	V _G =V _D =0V, Force Current
Diode Forward Voltage	V _{SD}	-	-	-1	V	V _{GS} =0V, I _S = -1A

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

CHARACTERISTIC CURVES

FIG. 1-Forward Characteristics of Body Diode

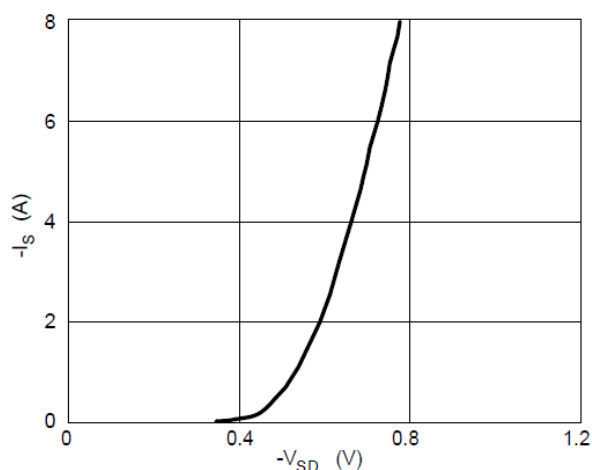


FIG. 2-Normalized $V_{GS(th)}$ vs T_J

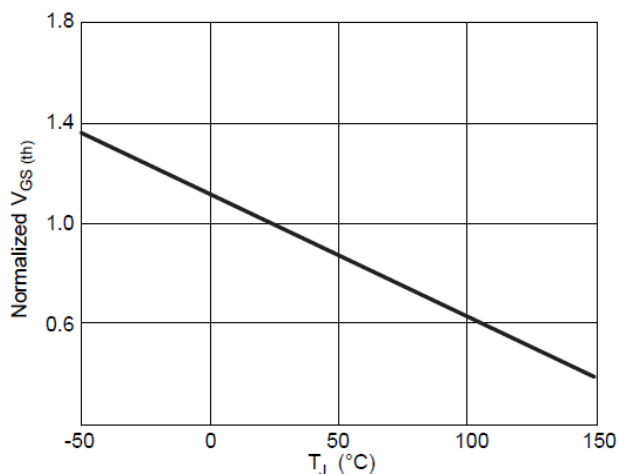


FIG. 3-Normalized $R_{DS(ON)}$ vs T_J

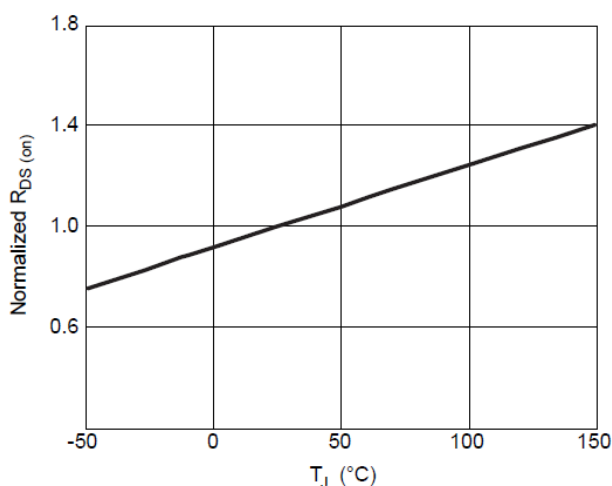


FIG. 4-Gate Charge Waveform

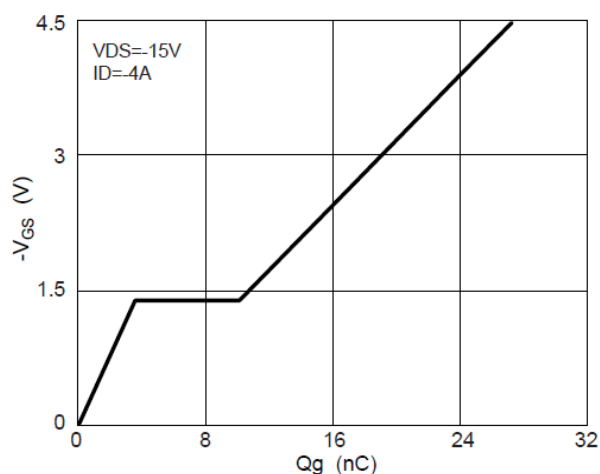


FIG. 5-Safe Operation Area

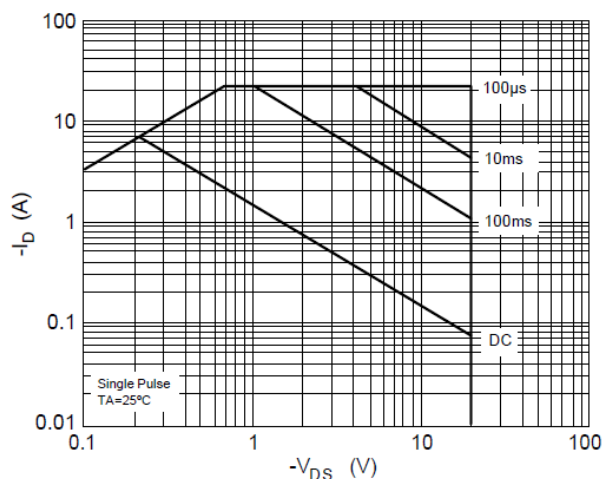
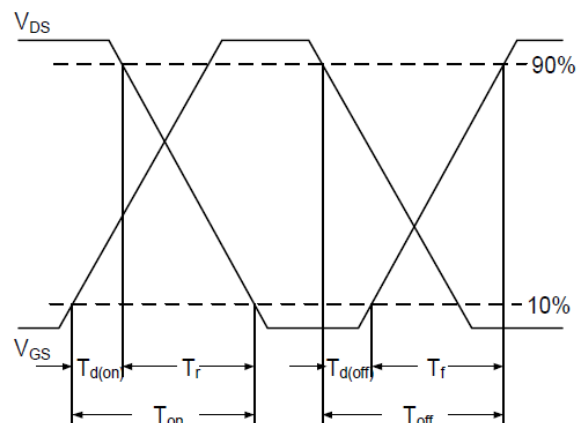
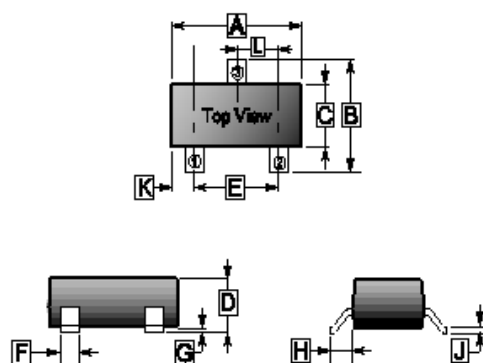


FIG. 6-Switching Time Waveform



PACKAGE OUTLINE DIMENSIONS

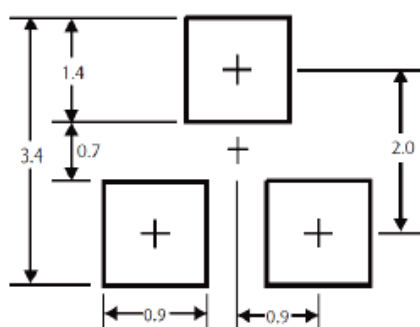
SOT-23



REF.	Millimeter	
	Min.	Max.
A	2.65	3.10
B	2.10	3.00
C	1.10	1.80
D	0.89	1.45
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