Elektronische Bauelemente

SMG3007Y-C

-7A , -30V, $R_{DS(ON)}$ 25mΩ

P-Channel Enhancement Mode Power MOSFET

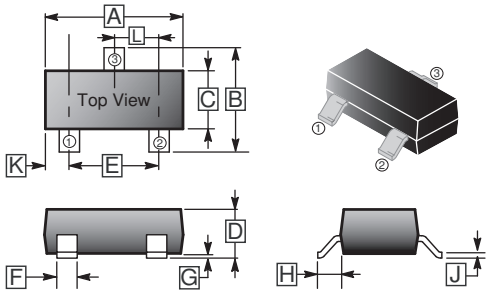
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SMG3007Y-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 SMG3007Y-C meet the RoHS and Green Product requirement with full function reliability approved.

SC-59



FEATURES

- Advanced High Cell Density Trench Technology
- Super low Gate Charge
- Green Device Available

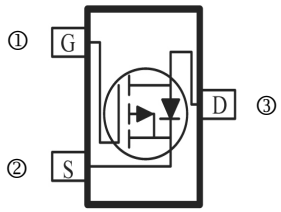
MARKING

3007

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.10 REF.	
B	2.10	3.00	H	0.40 REF.	
C	1.20	1.70	J	0.047	0.207
D	0.89	1.40	K	0.50 REF.	
E	2.00 TYP.		L	0.95 REF.	
F	0.30	0.50			

PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMG3007Y-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Continuous Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25℃	I_D	-7	A
	T_A=70℃		-5.6	
Pulsed Drain Current [1]		I_{DM}	-50	A
Total Power Dissipation	T_A=25℃	P_D	1.9	W
Thermal Resistance from Junction-Ambient [2]		$R_{\theta JA}$	65.7	℃/W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	V_{GS}=0, I_D= -250μA
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	V_{GS}=0, V_{DS}= -30V
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±10V, V_{DS}=0
Gate-Source Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS}, I_D= -250μA
Static Drain-Source On Resistance [1]	$R_{DS(ON)}$	-	18.5	25	mΩ	V_{GS}= -10V, I_D= -7A
		-	24.5	36		V_{GS}= -4.5V, I_D= -5A
Total Gate Charge	Q_g	-	28.7	-	nC	V_{DS}= -15V V_{GS}= -10V I_D= -6A
Gate-Source Charge	Q_{gs}	-	5.5	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	5.4	-		
Turn-On Delay Time	$T_{d(on)}$	-	10	-	nS	I_D= -6A V_{DS}= -15V V_{GS}= -10V R_{GEN}=2.5Ω
Rise Time	T_r	-	44	-		
Turn-Off Delay Time	$T_{d(off)}$	-	54	-		
Fall Time	T_f	-	59	-		
Input Capacitance	C_{iss}	-	1500	-	pF	V_{DS}= -15V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	178	-		
Reverse Transfer Capacitance	C_{rss}	-	146	-		
Source Drain Diode						
Forward On Voltage	V_{SD}	-	-0.8	-1.2	V	I_S = -7A, V_{GS}=0
Continuous Source Current [1]	I_S	-	-	-7	A	
Reverse Recovery Charge	Q_{rr}	-	6	-	nC	I_F= -7A, dI/dt=500A/μs
Reverse Recovery Time	T_{rr}	-	14	-	nS	

Notes:

1. The data tested by pulsed, pulse width≦300us, duty cycle≦2%.
2. $R_{\theta JA}$ is the sum of the junction-to-lead and lead-to-ambient thermal resistance, where the lead thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JL}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

TYPICAL CHARACTERISTIC CURVE

Figure 1. Output Characteristics

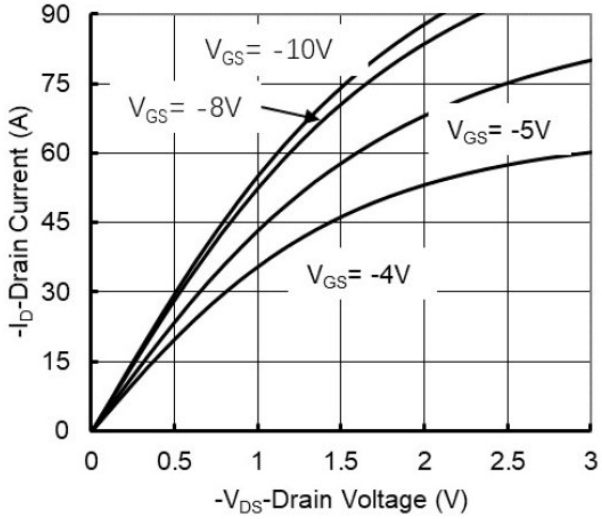


Figure 2. Transfer Characteristics

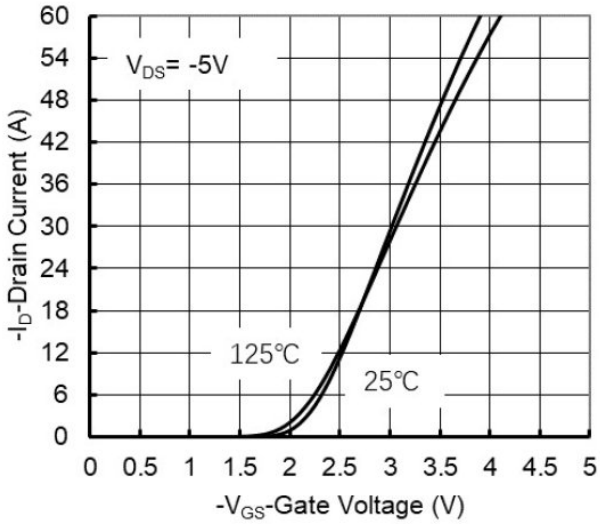


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

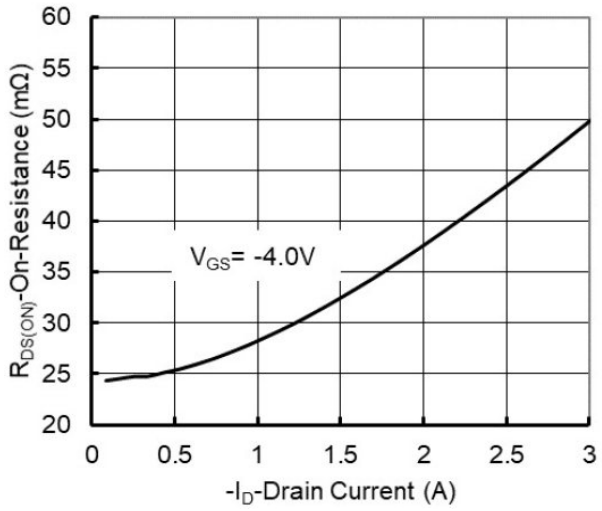


Figure 4. On-Resistance vs. Junction Temperature

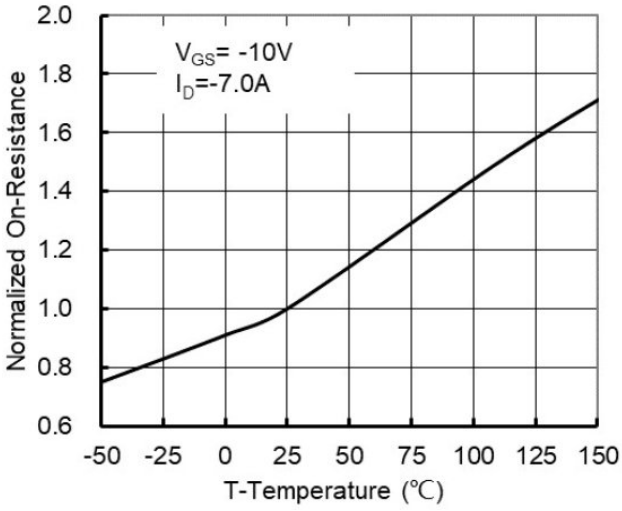


Figure 5. Capacitance Characteristics

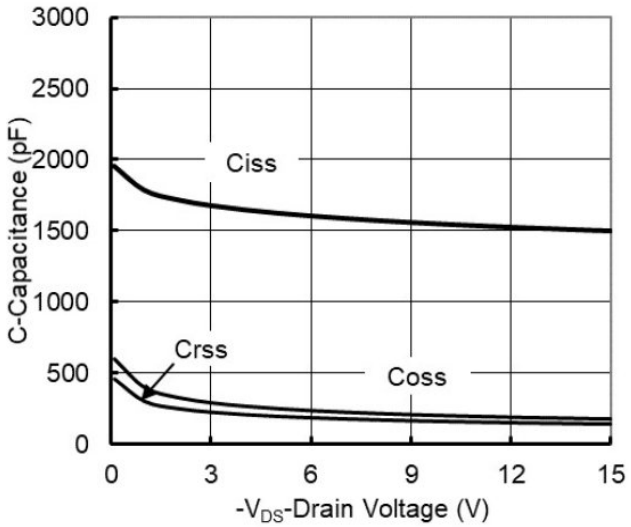
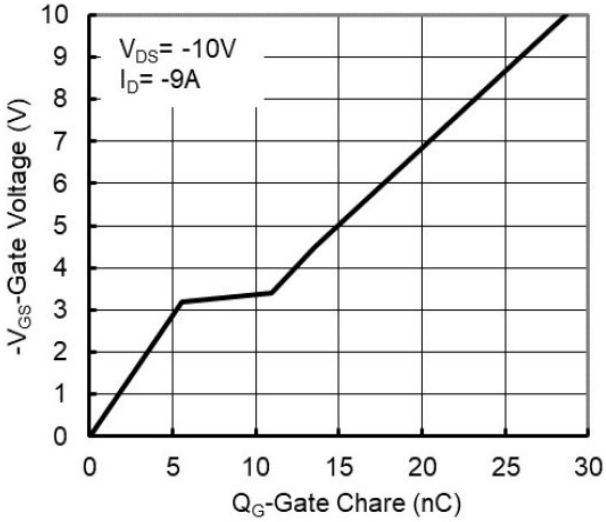


Figure 6. Gate Charge



TYPICAL CHARACTERISTIC CURVE

Figure 7. Safe Operation Area

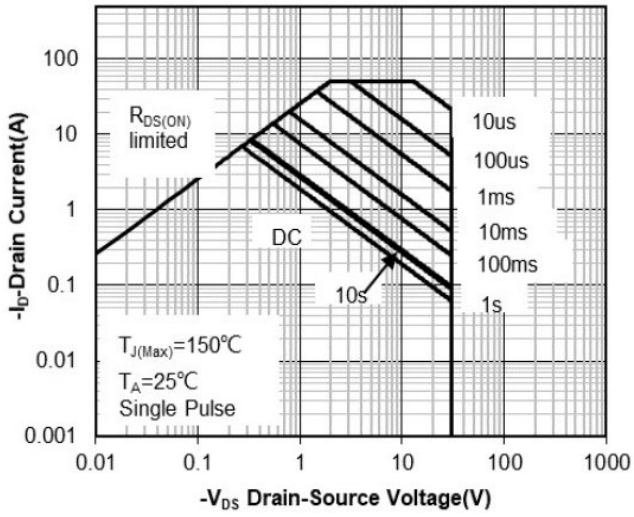


Figure 8. Maximum Continuous Drain Current vs Ambient Temperature

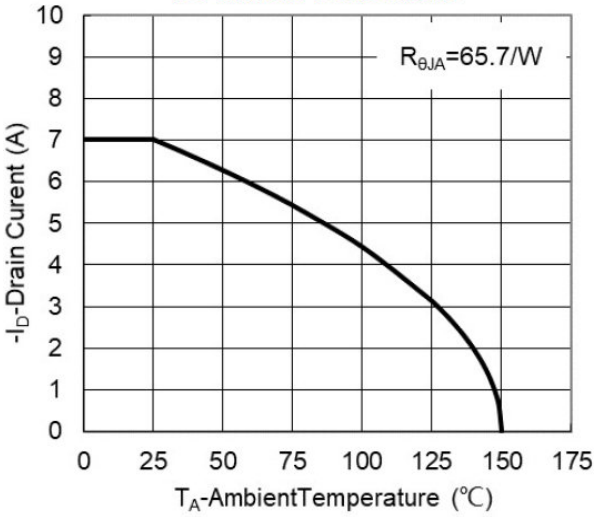


Figure 9. Normalized Maximum Transient Thermal Impedance