Elektronische Bauelemente

SSD70P03-C

-70A , -30V , $R_{DS(ON)}$ 7.5mΩ

P-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

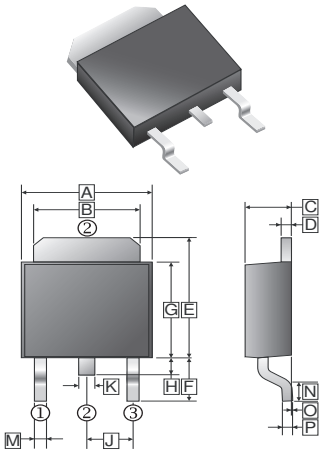
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSD70P03-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 synchronous buck converter applications.

The SSD70P03-C meet the RoHS and Green Product requirement with full function reliability approved.

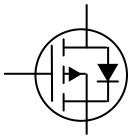
TO-252



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.90	J	2.186	2.386
B	4.95	5.50	K	0.64	1.14
C	2.10	2.50	M	0.50	1.14
D	0.43	0.9	N	1.3	1.8
E	6.0	7.5	O	0	0.13
F	2.90 REF		P	0.58REF.	
G	5.40	6.40			
H	0.60	1.20			

② Drain

① Gate

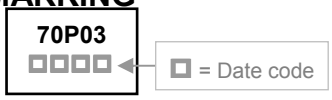


③ Source

FEATURES

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

MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSD70P03-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25°C	I_D	-70	A
	T_C=100°C		-50	
Pulsed Drain Current [2]		I_{DM}	-200	A
Total Power Dissipation [3]	T_C=25°C	P_D	78	W
Operating Junction & Storage Temperature		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	t≦10sec, 20	°C/W
			Steady State, 50	
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	1.6	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	V_{GS}=0, I_D= -250uA
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS}, I_D= -250uA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	I_{DSS}	-	-	-1	uA	V_{DS}= -24V, V_{GS}=0, T_J=25°C
		-	-	-5		V_{DS}= -24V, V_{GS}=0, T_J=55°C
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	-	7.5	mΩ	V_{GS}= -10V, I_D= -20A
		-	-	13		V_{GS}= -4.5V, I_D= -15A
Total Gate Charge	Q_g	-	60	-	nC	I_D= -18A V_{DS}= -15V V_{GS}= -10V
Gate-Source Charge	Q_{gs}	-	9	-		
Gate-Drain Change	Q_{gd}	-	15	-		
Turn-on Delay Time	$T_{d(on)}$	-	17	-	nS	V_{DD}= -15V I_D= -20A V_{GS}= -10V R_G=3.3Ω
Rise Time	T_r	-	40	-		
Turn-off Delay Time	$T_{d(off)}$	-	55	-		
Fall Time	T_f	-	13	-		
Input Capacitance	C_{iss}	-	3450	-	pF	V_{GS} =0 V_{DS}= -25V f=1.0MHz
Output Capacitance	C_{oss}	-	255	-		
Reverse Transfer Capacitance	C_{rss}	-	140	-		
Source-Drain Diode						
Diode Forward Voltage [2]	V_{SD}	-	-	-1.2	V	I_S= -1A, V_{GS}=0, T_J=25°C
Continuous Source Current [1]	I_S	-	-	-70	A	
Reverse Recovery Time	t_{rr}	-	22	-	nS	I_F= -20A, dI/dt=100A/μs, T_J=25°C
Reverse Recovery Charge	Q_{rr}	-	72	-	nC	

Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width ≦300us, duty cycle ≦ 2%.
3. Pulse width limited by maximum junction temperature

CHARACTERISTIC CURVES

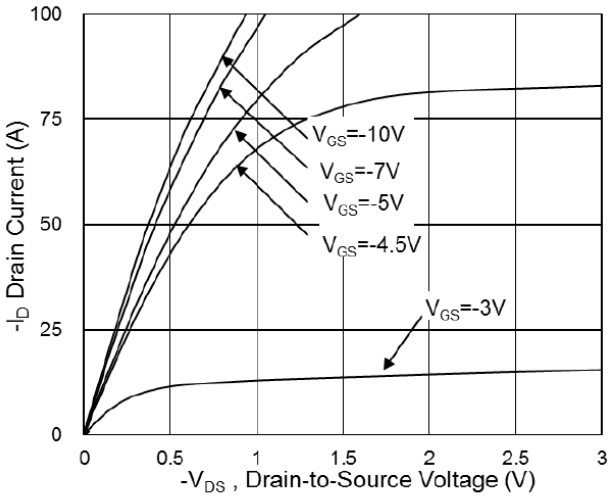


Fig.1 Typical Output Characteristics

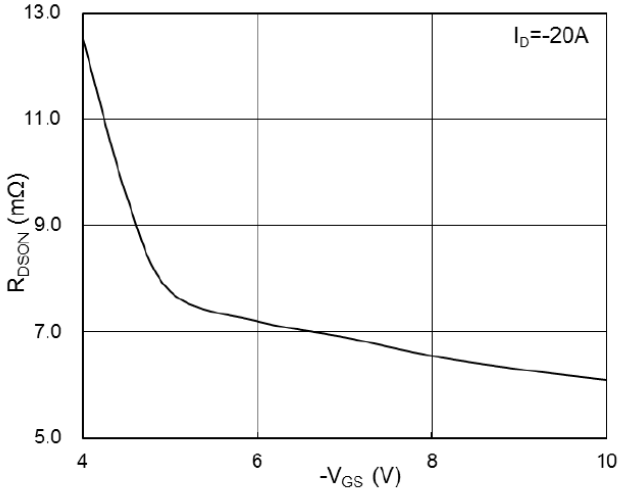


Fig.2 On-Resistance vs. Gate-Source Voltage

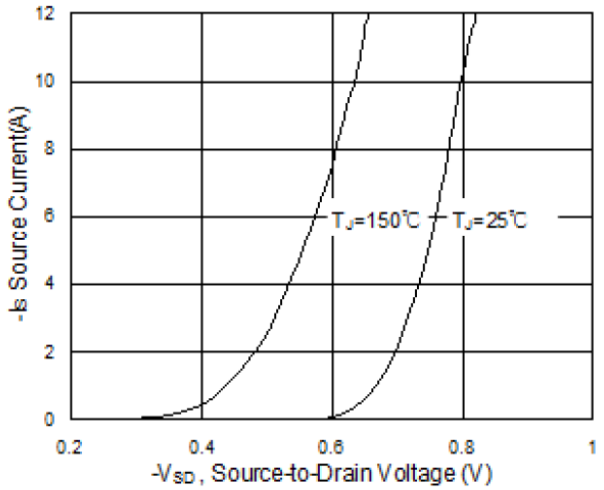


Fig.3 Forward Characteristics of Reverse

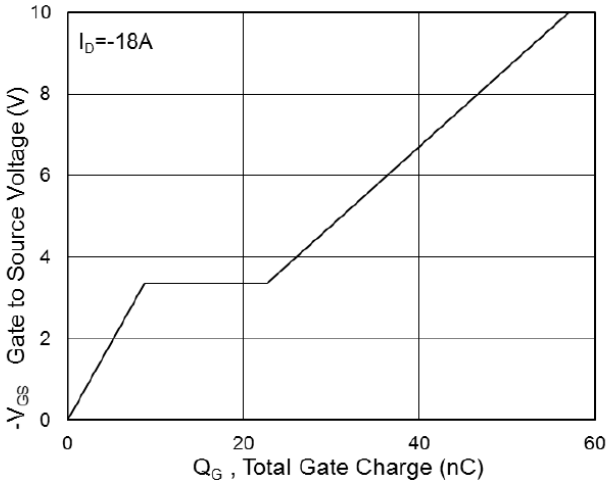


Fig.4 Gate-Charge Characteristics

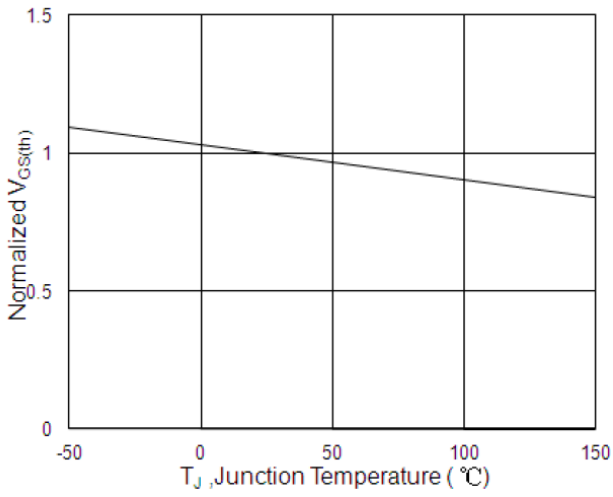


Fig.5 Normalized $-V_{GS(th)}$ vs. T_J

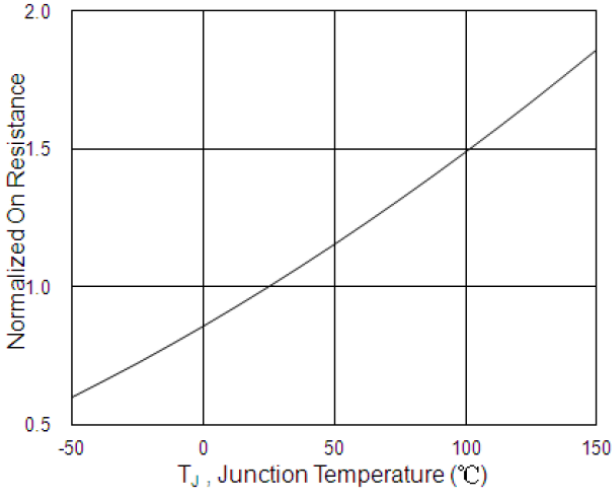


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVES

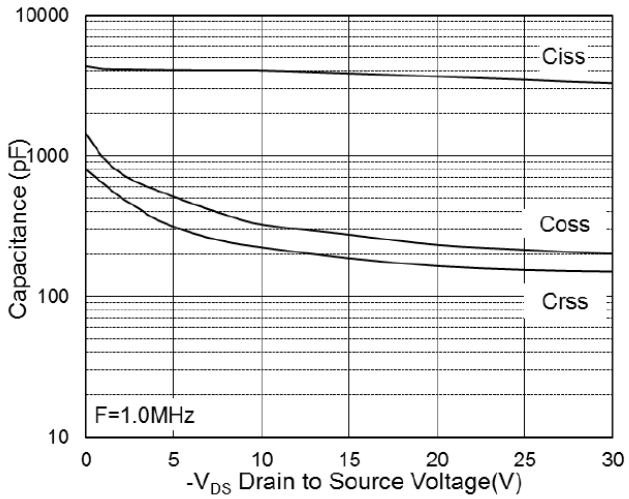


Fig.7 Capacitance

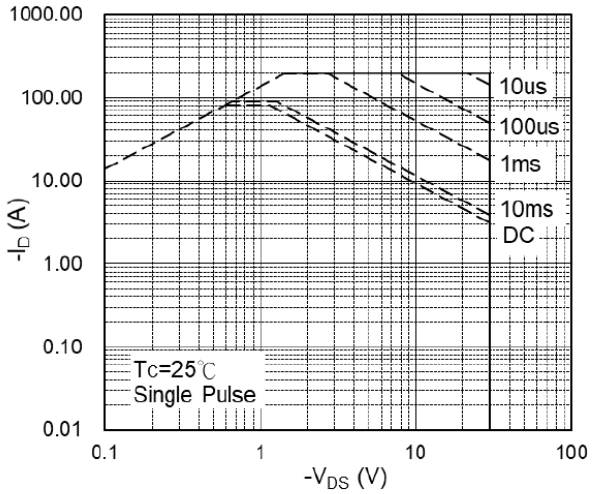


Fig.8 Safe Operating Area

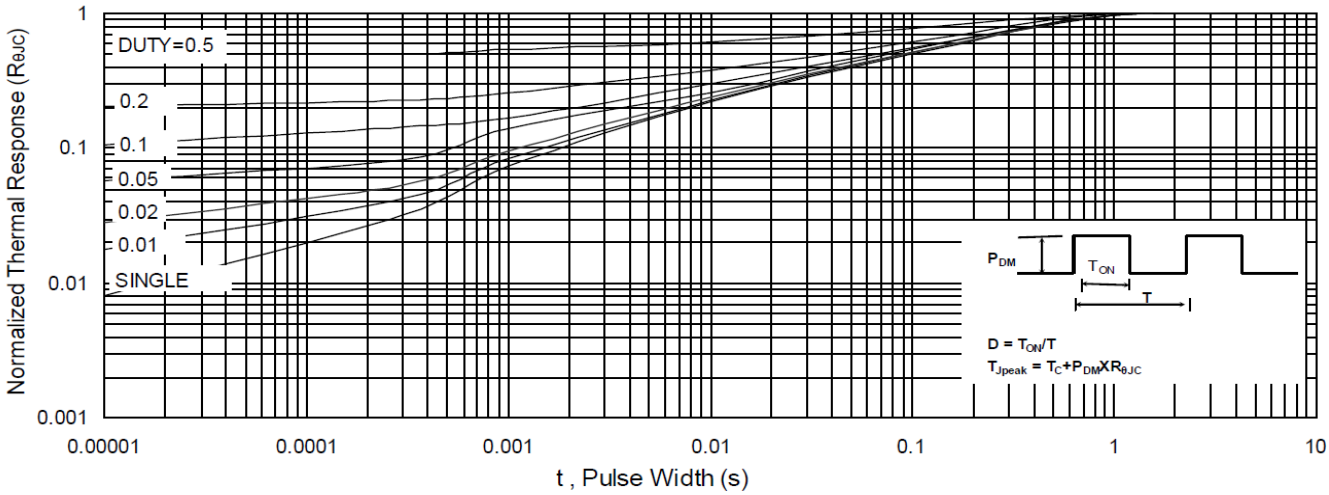


Fig.9 Normalized Maximum Transient Thermal Impedance

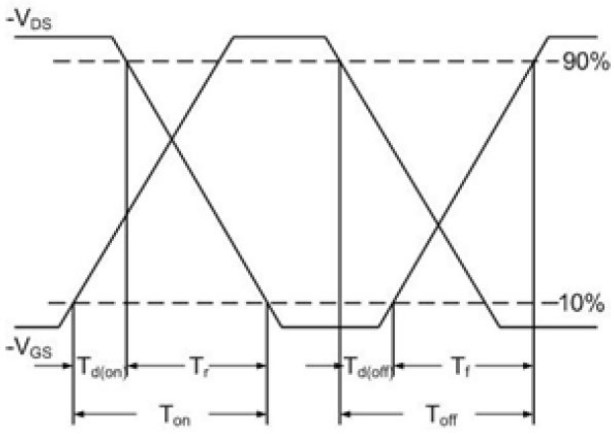


Fig.10 Switching Time Waveform

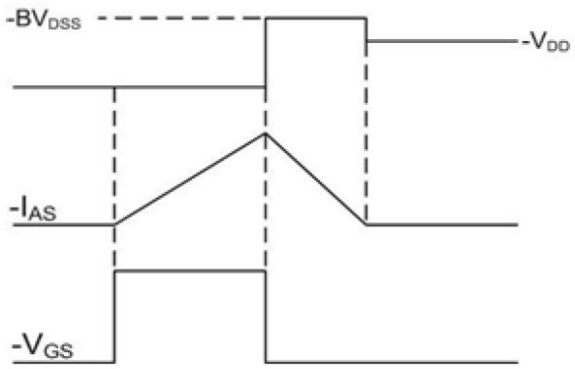


Fig.11 Unclamped Inductive Switching Waveform