Elektronische Bauelemente

SSD45P03-C

-45A, -30V, $R_{DS(ON)}$ 15mΩ

P-Ch Enhancement Mode Power MOSFET

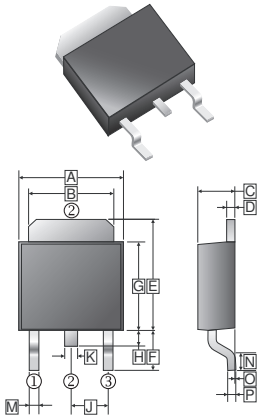
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSD45P03-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 SSD45P03-C meet the RoHS and Green Product With Function reliability approved.

TO-252(D-Pack)

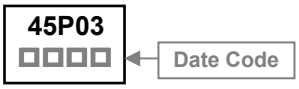


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.3	6.9	J	2.3 REF.	
B	4.95	5.53	K	0.89 REF.	
C	2.1	2.5	M	0.45	1.14
D	0.4	0.9	N	1.55 Typ.	
E	6	7.7	O	0	0.15
F	2.90 REF		P	0.58 REF.	
G	5.4	6.4			
H	0.6	1.2			

FEATURES

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

MARKING

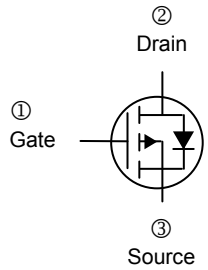


PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSD45P03-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current, @V_{GS}= -10V [1]	T_C=25°C	I_D	-45	A
	T_C=100°C		-30	
	T_A=25°C		-9.6	
	T_A=70°C		-7.7	
Pulsed Drain Current [3]		I_{DM}	-150	A
Total Power Dissipation	T_C=25°C	P_D	45	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Date				
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	2.8	°C/W
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	62.5	
Thermal Resistance Junction-Ambient [2]			110	

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= -250μA
Gate Threshold Voltage		$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS}, I_D= -250μA
Forward Transconductance		g_{fs}	-	30	-	S	V_{DS}= -5V, I_D= -30A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}=0
	T_J=55°C		-	-	-5		V_{DS}= -24V, V_{GS}=0
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	-	15	mΩ	V_{GS}= -10V, I_D= -30A
			-	-	25		V_{GS}= -4.5V, I_D= -15A
Total Gate Charge		Q_g	-	22	-	nC	I_D= -15A V_{DS}= -15V V_{GS}= -4.5V
Gate-Source Charge		Q_{gs}	-	8.7	-		
Gate-Drain Change		Q_{gd}	-	7.2	-		
Turn-on Delay Time		$T_{d(on)}$	-	8	-	nS	V_{DD}= -15V I_D= -15A V_{GS}= -10V R_G=3.3Ω
Rise Time		T_r	-	73.7	-		
Turn-off Delay Time		$T_{d(off)}$	-	61.8	-		
Fall Time		T_f	-	24.4	-		
Input Capacitance		C_{iss}	-	2215	-	pF	V_{GS}=0 V_{DS}= -15V f=1MHz
Output Capacitance		C_{oss}	-	310	-		
Reverse Transfer Capacitance		C_{rss}	-	237	-		
Source-Drain Diode							
Continuous Source Current [1]		I_S	-	-	-45	A	
Pulsed Source Current [3]		I_{SM}	-	-	-150	A	
Diode Forward Voltage [4]		V_{SD}	-	-	-1.2	V	I_S= -1A, V_{GS}=0
Reverse Recovery Time		t_{rr}	-	19	-	nS	I_F= -15A, dI/dt=100A/μs T_J=25°C
Reverse Recovery Charge		Q_{rr}	-	9	-	nC	

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

TYPICAL CHARACTERISTICS CURVE

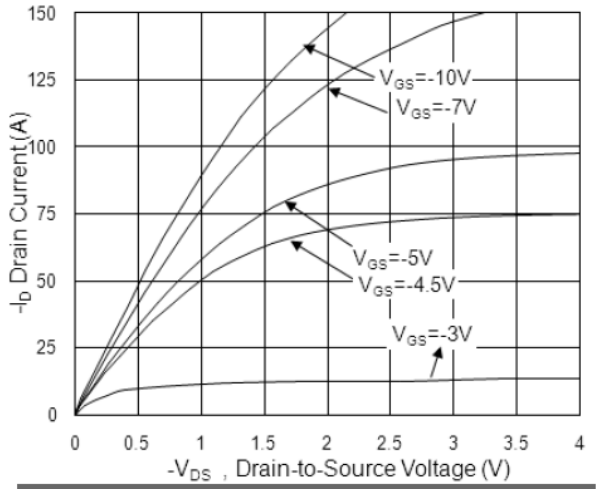


Fig.1 Typical Output Characteristics

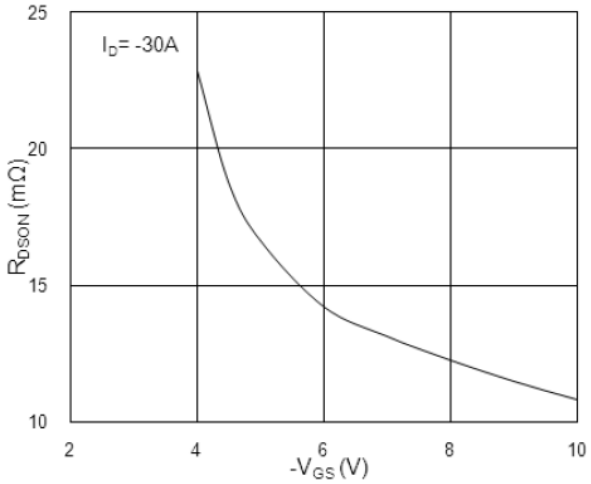


Fig.2 On-Resistance vs. G-S Voltage

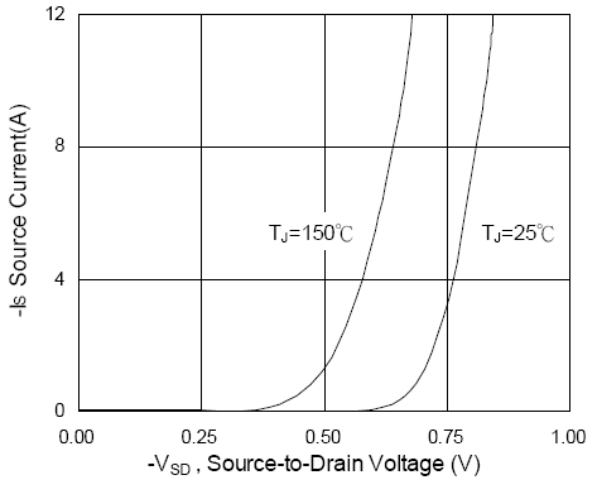


Fig.3 Forward Characteristics of Reverse

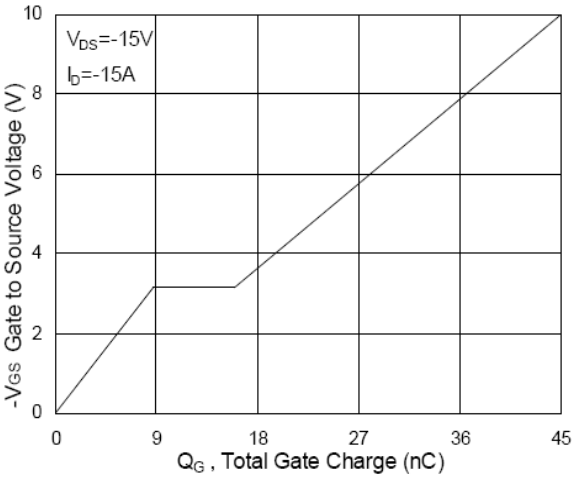


Fig.4 Gate-charge Characteristics

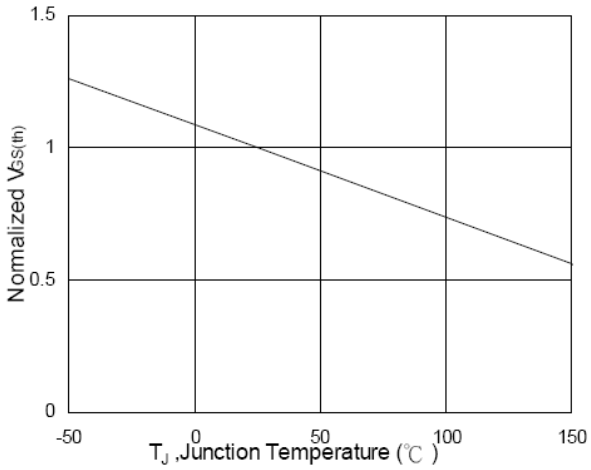


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

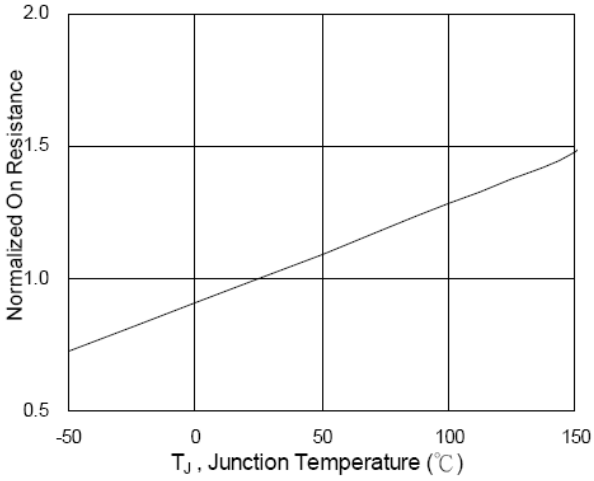


Fig.6 Normalized R_{DSON} vs. T_J

TYPICAL CHARACTERISTICS CURVE

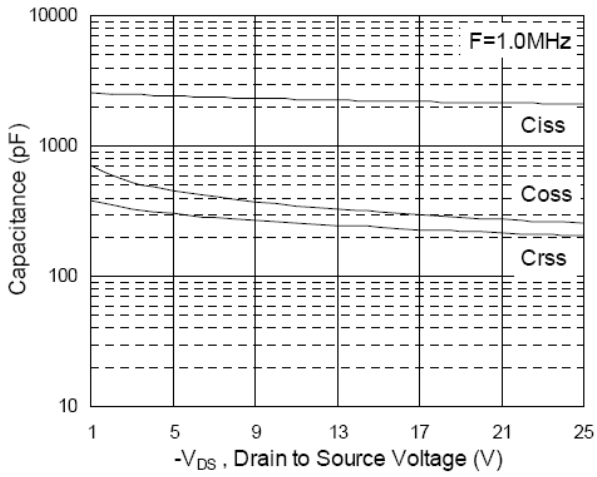


Fig.7 Capacitance

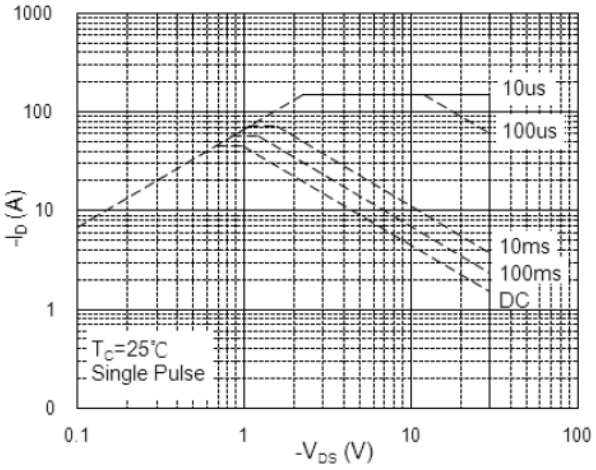


Fig.8 Safe Operating Area

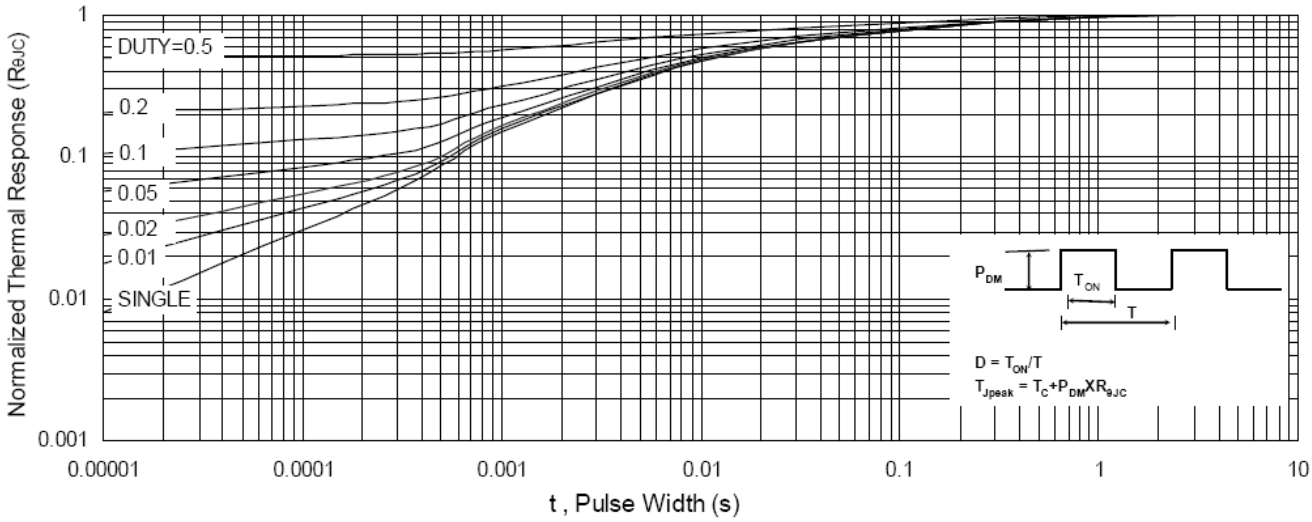


Fig.9 Normalized Maximum Transient Thermal Impedance

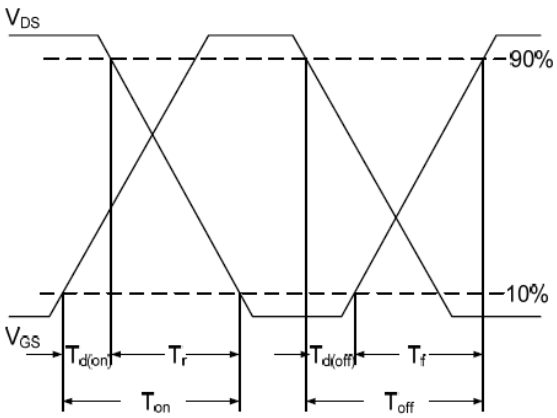


Fig.10 Switching Time Waveform

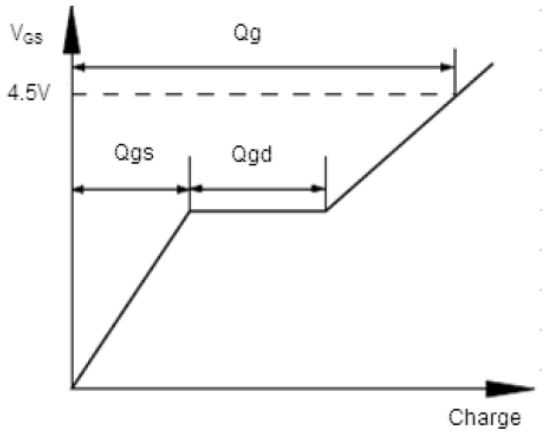


Fig.11 Gate Charge Waveform