SemTron Microtech Corporation

SMC4732

30V N-Channel Enhancement Mode MOSFET

FEATURE

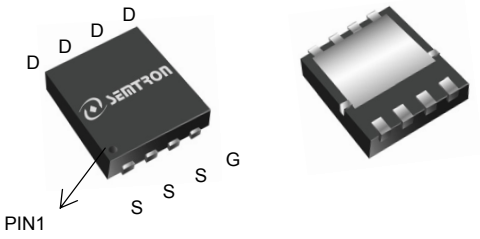
- **30V / 80A**
- **$R_{DS(ON)}$ = 3.6mΩ(typ.)@V_{GS} = 10V**
- **$R_{DS(ON)}$ = 4.8mΩ(typ.)@V_{GS} = 4.5V**
- Low gate charge
- Improved dv/dt capability
- High power and current handlingcapability
- 100% EAS Guaranteed

SMC4732PD-TRG ROHS Compliant This is Halogen Free

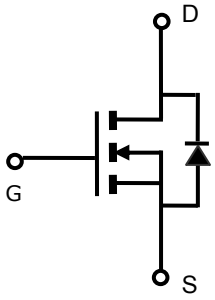
APPLICATIONS

- High Frequency DC/DC convertersPortabl
- Protable Equipment and Battery Powered Systems.
- Load Switch.

PIN CONFIGURATION



DFN5X6A-8
Top View



PART NUMBER INFORMATION

SMC 4732 PD - TR G a b c d e	**a : Company name.** **b : Product Serial number.** **c : Package code** **d : Handling code** **e : Green produce code**

ORDERING INFORMATION

Part Number	Package Code	Handling Code	Shipping
SMC4732PDC-TRG	PDC : DFN5X6A-8	TR : Tape&Reel	3K/Reel

※ Year Code : 0 ~ 9, 2010 : 0
※ Week Code : A(1~2) ~ Z(53~54)
※ DFN5X6A-8 : Only available in tape and reel packaging.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		30	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current [A]	T_C=25°C	20	A
		T_C=100°C	15	
I_{DM}	Pulsed Drain Current [A]	T_C=25°C	83	A
E_{AS}	Single Pulse Avalanche energy L=0.1mH [B]		130	mJ
I_{AS}	Avalanche Current [B]		47	A
P_D	Power Dissipation [F]	T_C=25°C T_C=100°C	60 45	W
P_D	Power Dissipation [A] Surface−mounted	T_C=25°C T_C=100°C	2.2 1.5	W
T_J	Operation Junction Temperature		-55/150	°C
T_{STG}	Storage Temperature Range		-55/150	°C
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient [C]	Steady-State	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction to Lead [C]	Steady-State	2.2	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
A. Surface−mounted on FR-4 board using 1 sq−in pad, 1 oz Cu.
B. The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=20A,R_G=25Ω,Starting TJ=25°C.
C. UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature Tj=25°C).
F. The power dissipation PD is based on TJ(MAX)=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper.

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Parameters						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage [D]	V_{GS} =0V,I_D =250μA	30			V
$V_{GS(th)}$	Gate Threshold Voltage [D]	V_{DS} =V_{GS},I_D =250μA	1.0	1.5	2.0	V
I_{GSS}	Gate Leakage Current	V_{DS} =0V,V_{GS}=±120V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =24V,V_{GS} =0V T_J =25°C			1	μA
		V_{DS} =24V,V_{GS} =0V T_J =125°C			10	
$R_{DS(ON)}$	Drain-source On-Resistance [D]	V_{GS} =10V,I_D=20A V_{GS} =4.5V, I_D=15A		3.6 4.8	4.5 6	mΩ
G_{fs}	Forward Transconductance [D]	V_{DS} =10V,I_D =20A		38		S
Source-Drain Doide						
V_{SD}	Diode Forward Voltage[B]	I_S=1A,V_{GS}=0V		0.7	1.0	V
I_S	Continuous Source Current				85	A
Dynamic Parameters						
Q_g (4.5V)	Total Gate Charge	V_{DS} =15V,V_{GS} =4.5V I_D =15A		17.2		nC
Q_{gs}	Gate-Source Charge			5.2		
Q_{gd}	Gate-Drain Charge			7.2		
C_{iss}	Input Capacitance	V_{DS} =15V,V_{GS} =0V f =1MHz		1860		pF
C_{oss}	Output Capacitance			310		
C_{rss}	Reverse Transfer Capacitance			203		
R_G	Gate Resistance	V_{GS}=0V, V_{DS}=0V, F=1MHz		1.9	2.2	Ω
$t_{d(on)}$	Turn-On Time [E]	V_{DD}=15V, V_{GEN}=10V, R_G=3.3Ω, I_D =15A		8.2		nS
t_r				18		
$t_{d(off)}$	Turn-Off Time [E]			39		
t_f				11.8		

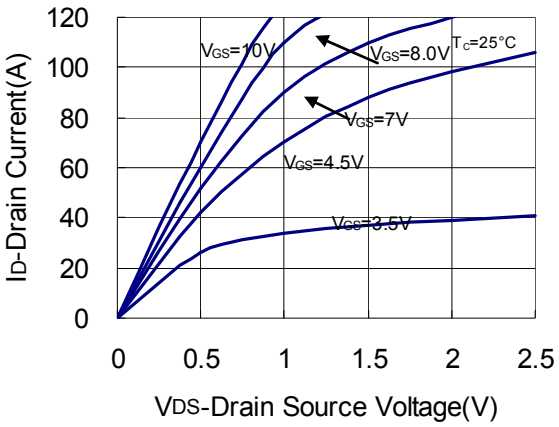
Note:

D. The data tested by pulsed , pulse width ≦ 300uS , duty cycle ≦ 2%

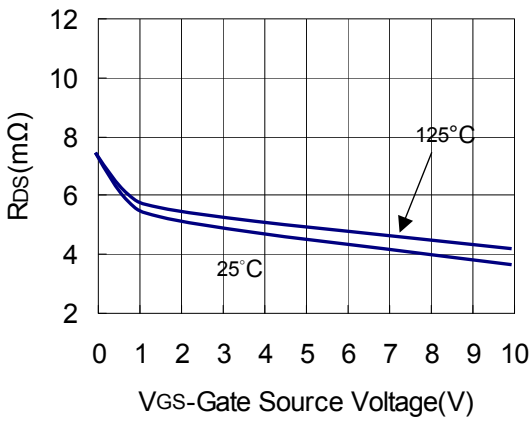
E. Pulsed width limited by maximum junction temperature.

TYPICAL CHARACTERISTICS

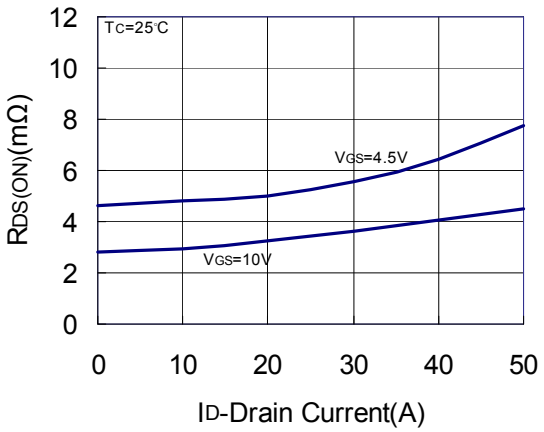
Output Characteristics



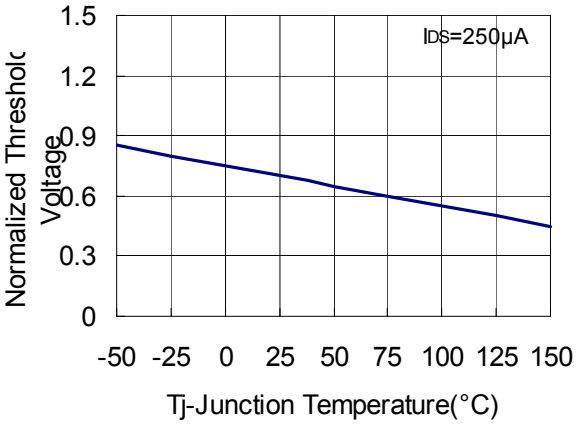
Drain-Source On Resistance



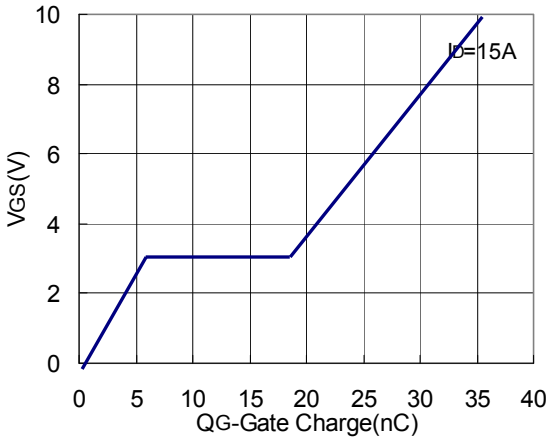
Transfer Characteristics



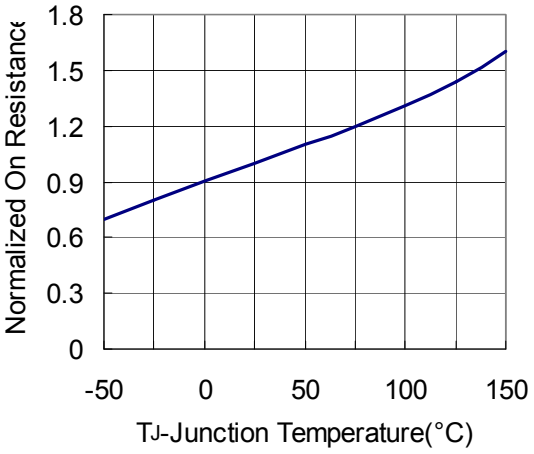
Gate Threshold Voltage



Gate Charge

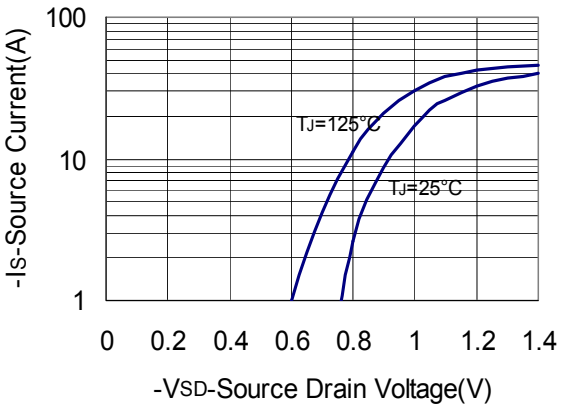


Drain Source On Resistance

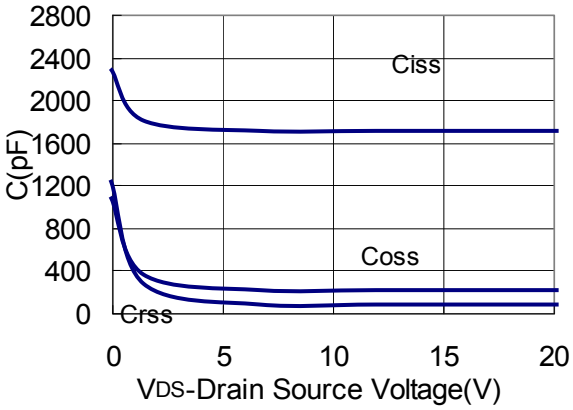


TYPICAL CHARACTERISTICS

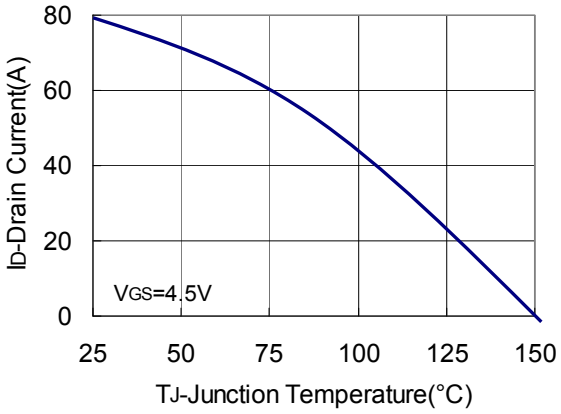
Source Drain Diode Forward

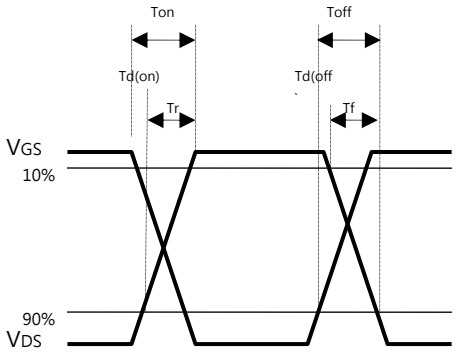


Capacitance

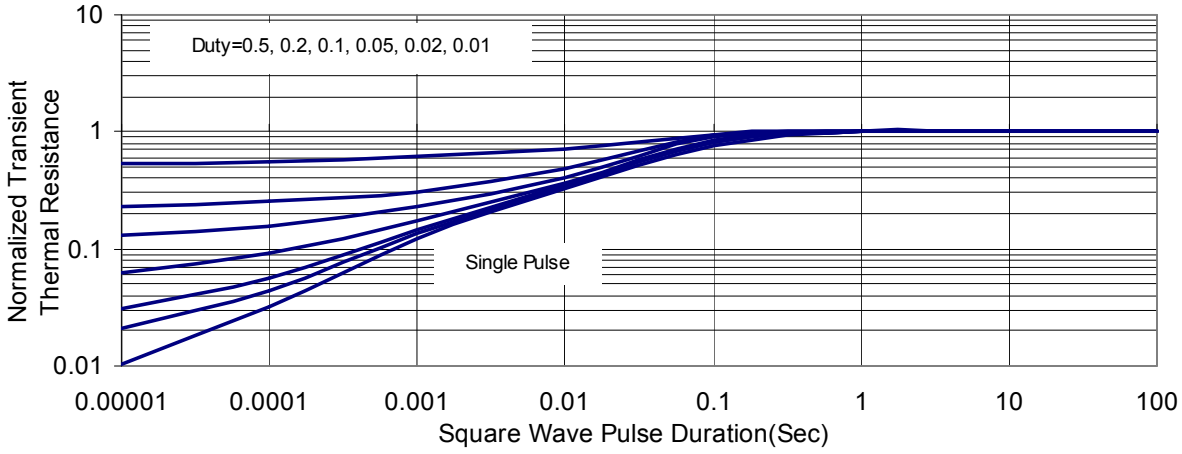


Drain Current





Thermal Transient Impedance



DFN5X6A-8 PACKAGE DIMENSIONS

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
D2	4.824	4.976	0.190	0.196
E1	3.375	3.575	0.133	0.141
E2	5.674	5.826	0.223	0.229
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
k	1.190	1.390	0.047	0.055
L	0.559	0.325	0.011	0.013
L1	0.424	0.725	0.027	0.029
H	0.574	0.325	0.011	0.013
Θ	10°	12°	10°	12°