SPC4567W
N & P Pair Enhancement Mode MOSFET

DESCRIPTION

The SPC4567W is the N- and P-Channel enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where high-side switching , low in-line power loss, and resistance to transients are needed.

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

FEATURES

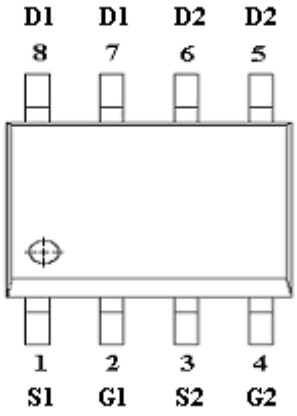
N-Channel

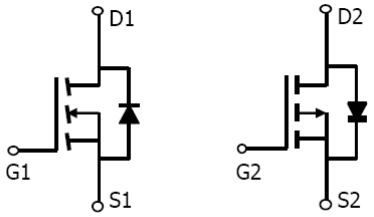
- 40V/6.0A,$R_{DS(ON)}$=53mΩ@V_{GS}=10V
- 40V/5.0A,$R_{DS(ON)}$=63mΩ@V_{GS}=4.5V
- 40V/4.5A,$R_{DS(ON)}$=78mΩ@V_{GS}=2.5V

P-Channel

- -40V/-7.2A,$R_{DS(ON)}$=95mΩ@V_{GS}=-10V
- -40V/-5.0A,$R_{DS(ON)}$=130mΩ@V_{GS}=-4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOP–8 package design

PIN CONFIGURATION(SOP–8)





n-channel p-channel

PART MARKING

A : Lot Code
B : Date Code

SPC4567W
N & P Pair Enhancement Mode MOSFET

PIN DESCRIPTION

Pin	Symbol	Description
1	S1	Source 1
2	G1	Gate 1
3	S2	Source 2
4	G2	Gate 2
5	D2	Drain 2
6	D2	Drain 2
7	D1	Drain 1
8	D1	Drain 1

ORDERING INFORMATION

Part Number	Package	Part Marking
SPC4567WS8RGB	SOP-8	SPC4567W

※ SPC4567WS8RGB 13” Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical		Unit
			N-Channel	P-Channel	
Drain-Source Voltage		V_{DSS}	40	-40	V
Gate –Source Voltage		V_{GSS}	20	-20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	6.0	-7.2	A
	T_A=70℃		5.0	-5.0	
Pulsed Drain Current		I_{DM}	25	-25	A
Continuous Source Current(Diode Conduction)		I_S	2.3	-2.3	A
Power Dissipation	T_A=25℃	P_D	2.5	2.8	W
	T_A=70℃		1.6	1.8	
Operating Junction Temperature		T_J	-55/150		℃
Storage Temperature Range		T_{STG}	-55/150		℃
Thermal Resistance-Junction to Ambient	$T \leq 10$sec	$R_{\theta JA}$	50	52	℃/W
	Steady State		80	80	

ELECTRICAL CHARACTERISTICS (NMOS)

(T_A=25℃ Unless otherwise noted)

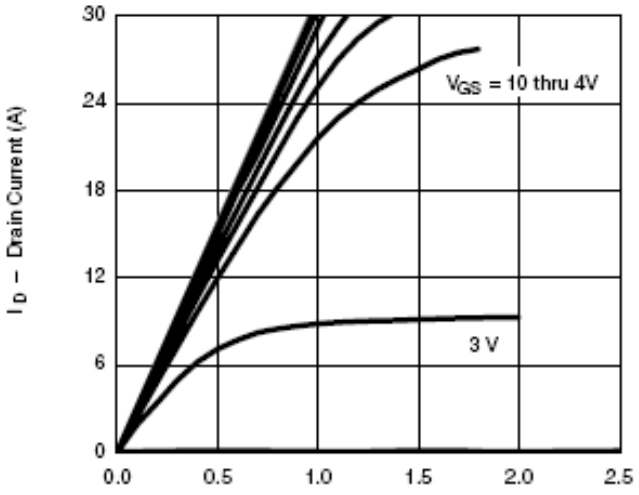
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	0.5		1.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V			1	uA
		V_{DS}=40V,V_{GS}=0V T_J=85℃			5	
On-State Drain Current	$I_{D(on)}$	V_{DS}= 5V,V_{GS} =4.5V	10			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=6.0A		42	53	mΩ
		V_{GS}=4.5V,I_D=5.0A		52	63	
		V_{GS}=2.5V,I_D=4.5A		67	78	
Forward Transconductance	gfs	V_{DS}=15V,I_D=6.2A		13		S
Diode Forward Voltage	V_{SD}	I_S=2.3A,V_{GS} =0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V I_D=2A		16	24	nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			2.5		
Turn-On Time	$t_{d(on)}$	V_{DD}=15V,R_L=15Ω I_D=1.0A,V_{GEN}=10V R_G=6Ω		15	20	nS
	t_r			6	12	
Turn-Off Time	$t_{d(off)}$			10	20	
	t_f			40	80	

ELECTRICAL CHARACTERISTICS (PMOS)

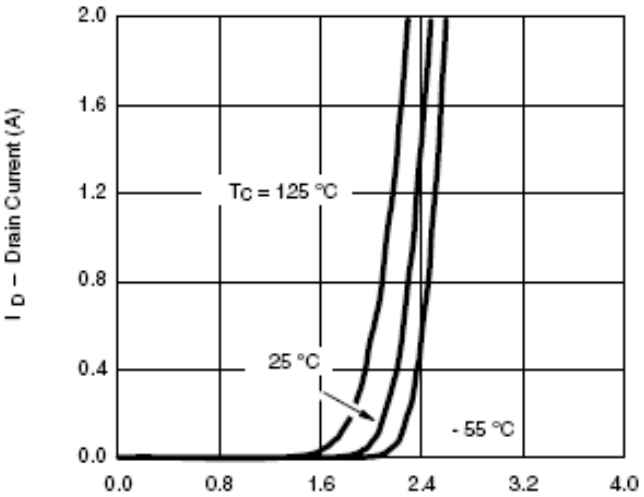
(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250uA	-0.8		-2.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-36V,V_{GS}=0V			-1	uA
		V_{DS}=-36V,V_{GS}=0V T_J=85℃			-5	
On-State Drain Current	$I_{D(on)}$	V_{DS}= -5V,V_{GS} =-4.5V	-10			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V,I_D=-7.2A		82	95	mΩ
		V_{GS}=-4.5V,I_D=-5.0A		115	130	
Forward Transconductance	gfs	V_{DS}=-15V,I_D=-5.7A		13		S
Diode Forward Voltage	V_{SD}	I_S=-1.3A,V_{GS} =0V		-0.55	-1.0	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=-10V I_D=-3.5A		9	12	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.0		
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V f=1MHz		500		pF
Output Capacitance	C_{oss}			95		
Reverse Transfer Capacitance	C_{rss}			50		
Turn-On Time	$t_{d(on)}$	V_{DD}=-15V,R_L=15Ω I_D=-1.0A,V_{GEN}=-10V R_G=6Ω		8	20	nS
	t_r			10	20	
Turn-Off Time	$t_{d(off)}$			30	35	
	t_f			15	20	

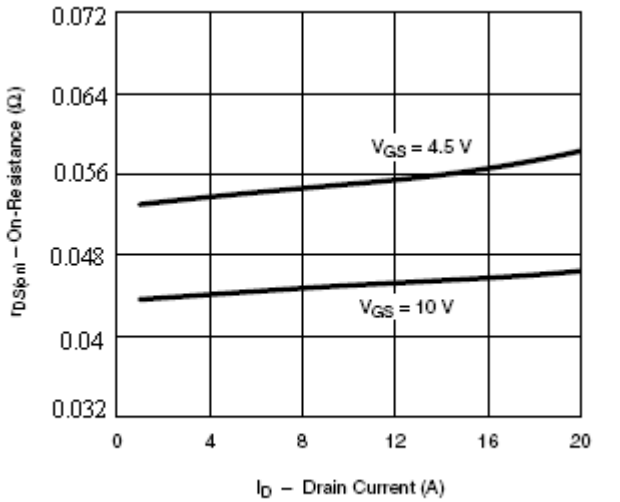
TYPICAL CHARACTERISTICS (NMOS)



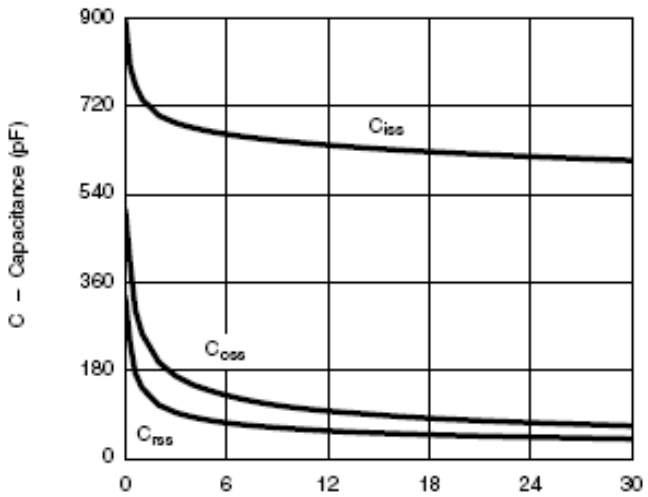
Output Characteristics



Transfer Characteristics

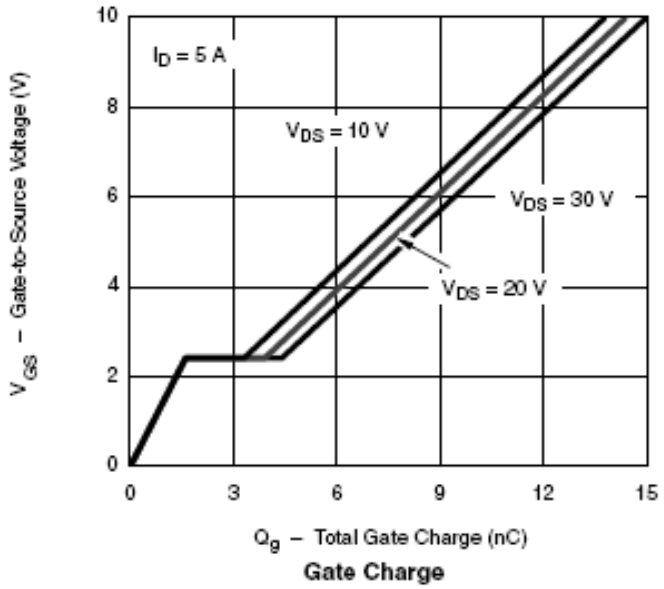


On-Resistance vs. Drain Current and Gate Voltage

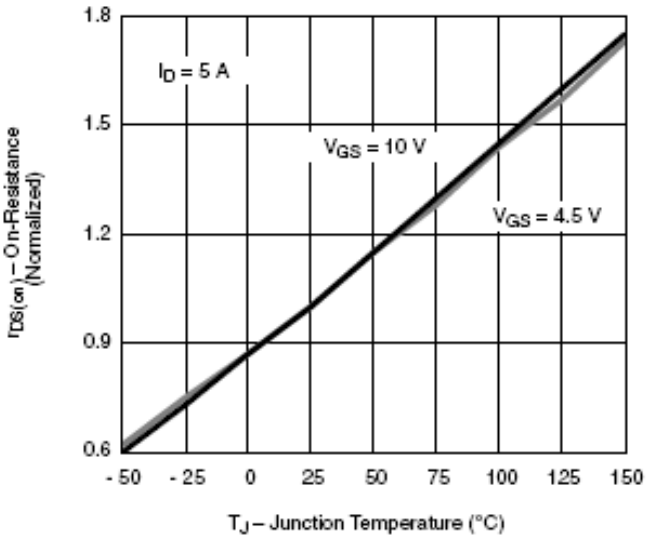


Capacitance

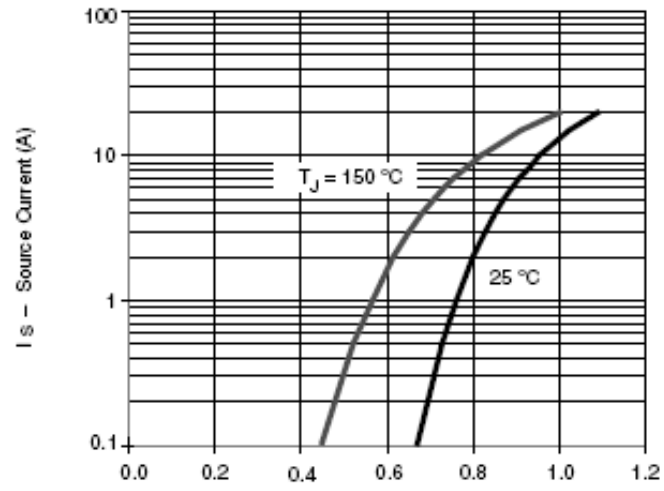
TYPICAL CHARACTERISTICS (NMOS)



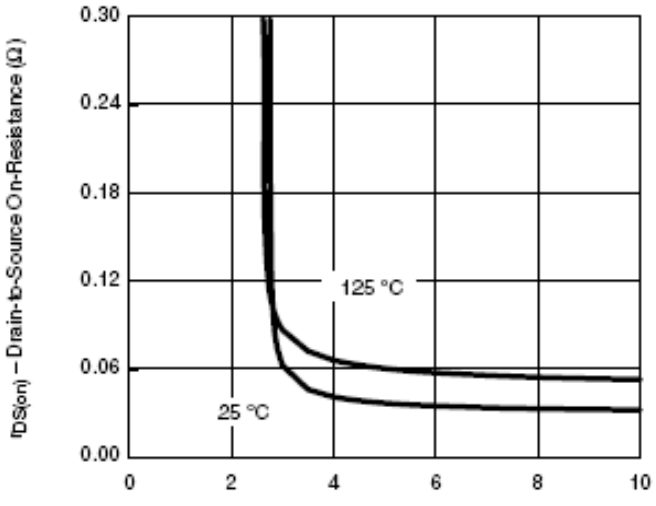
Gate Charge



On-Resistance vs. Junction Temperature

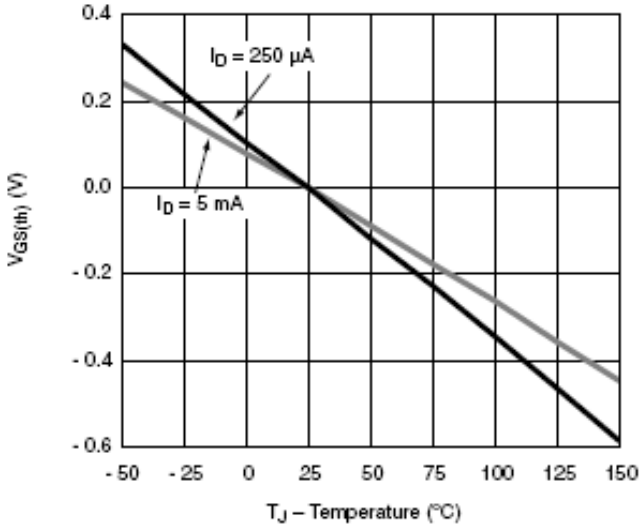


Source-Drain Diode Forward Voltage

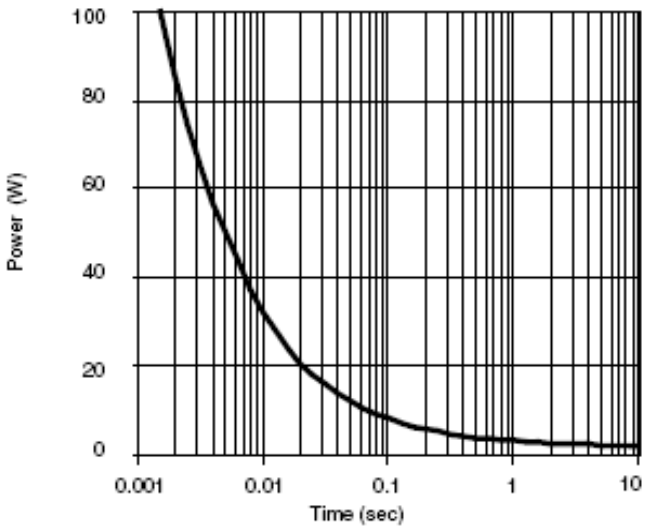


On-Resistance vs. Gate-to-Source Voltage

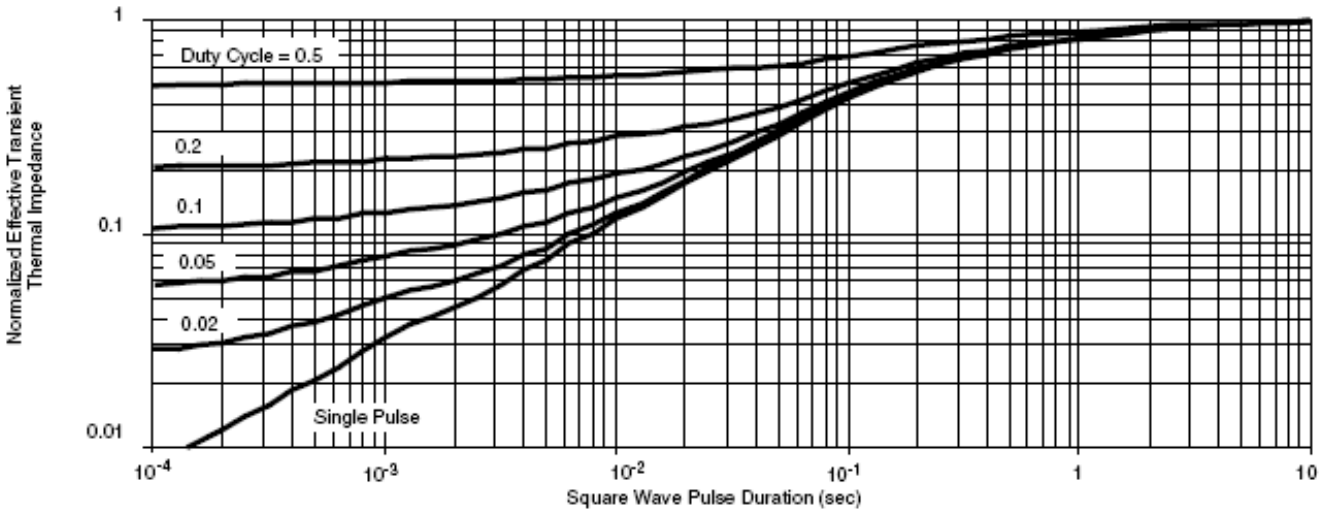
TYPICAL CHARACTERISTICS (NMOS)



Threshold Voltage

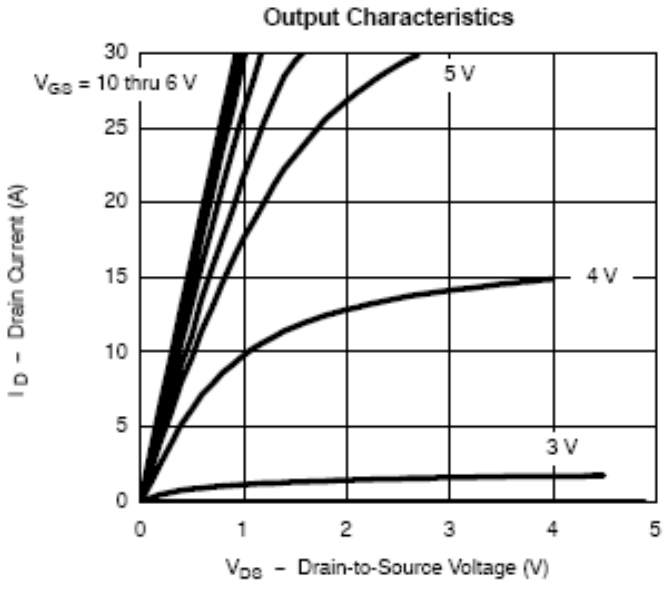


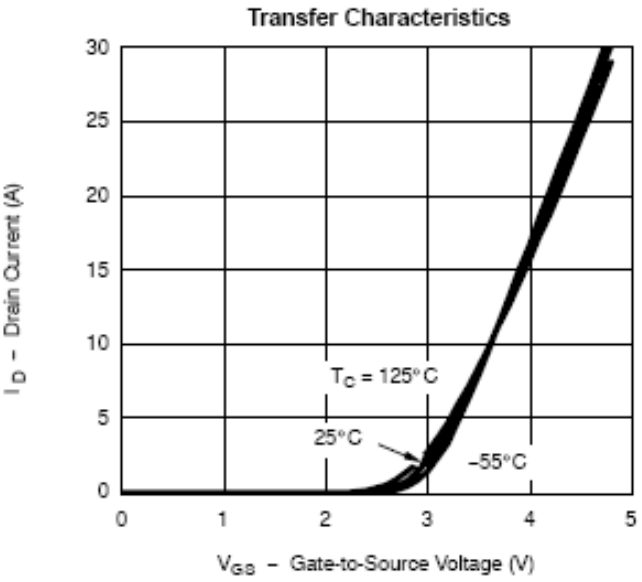
Single Pulse Power, Junction-to-Ambient

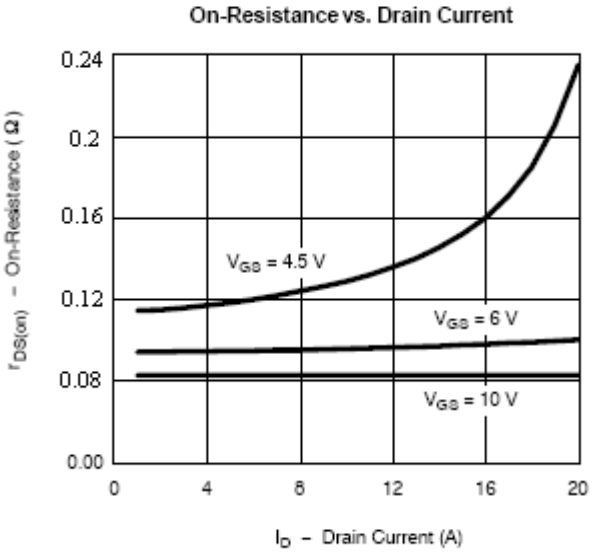


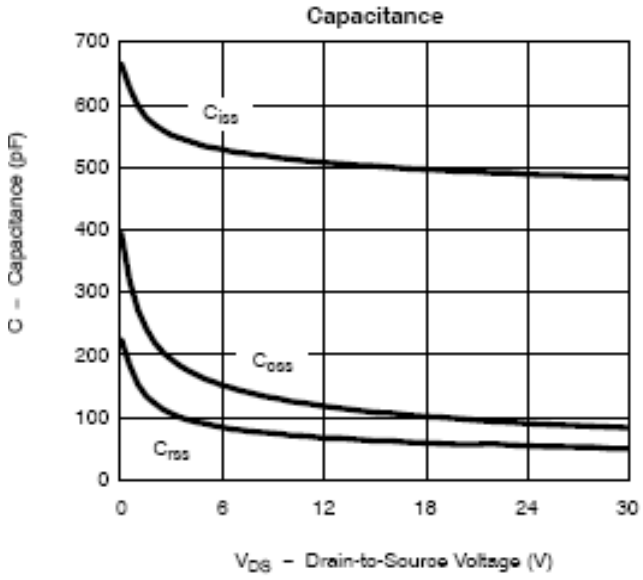
Normalized Thermal Transient Impedance, Junction-to-Foot

TYPICAL CHARACTERISTICS (PMOS)



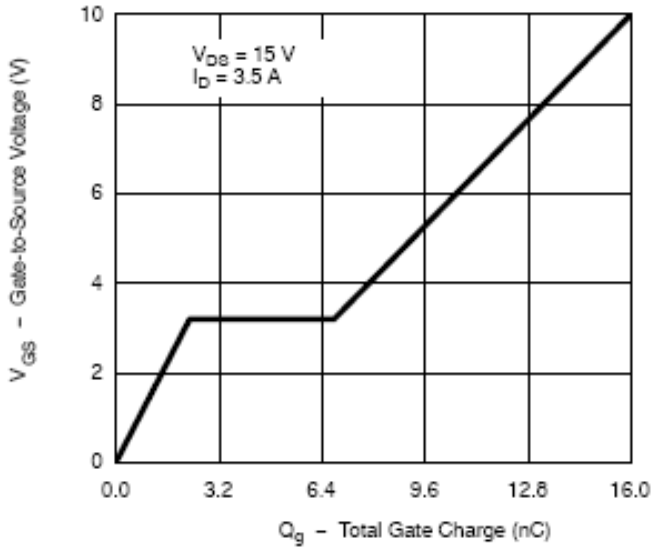




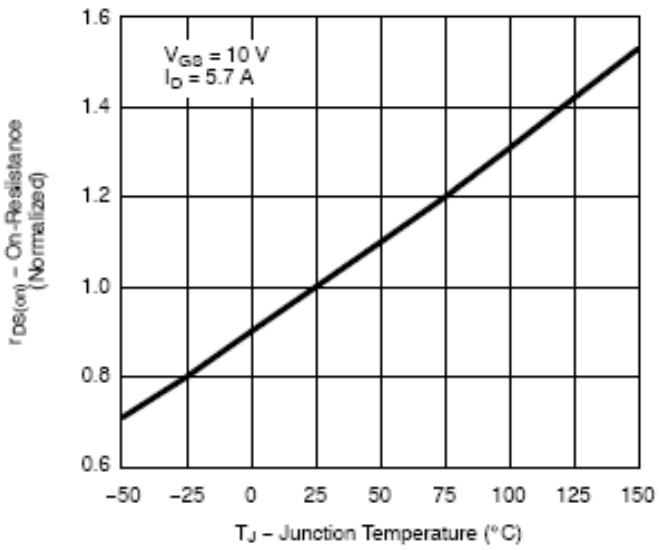


TYPICAL CHARACTERISTICS (PMOS)

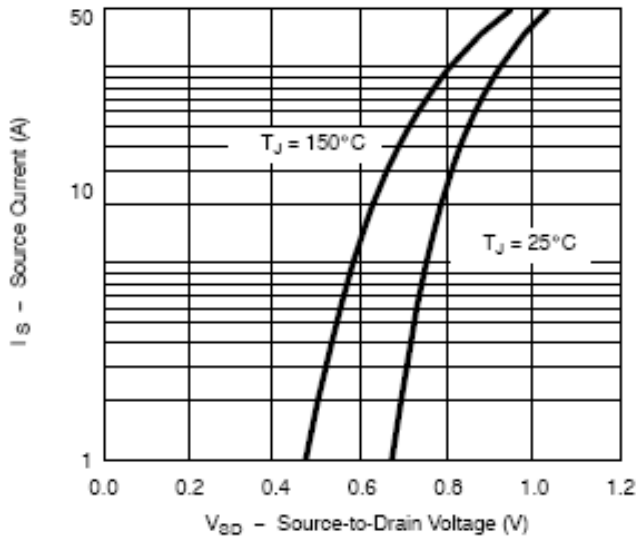
Gate Charge



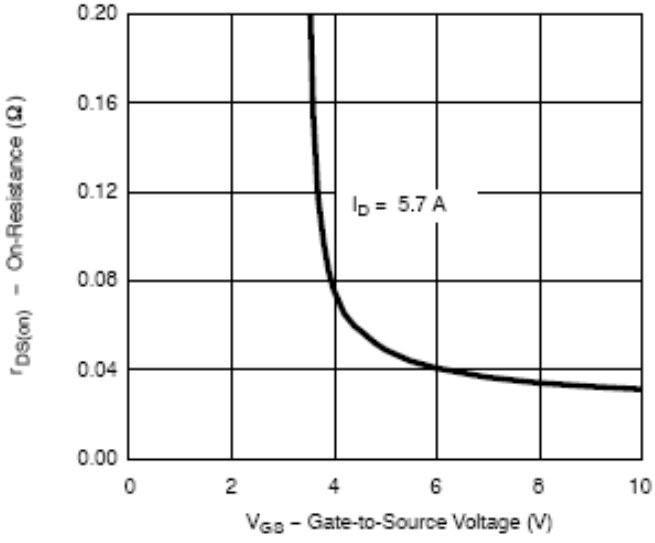
On-Resistance vs. Junction Temperature



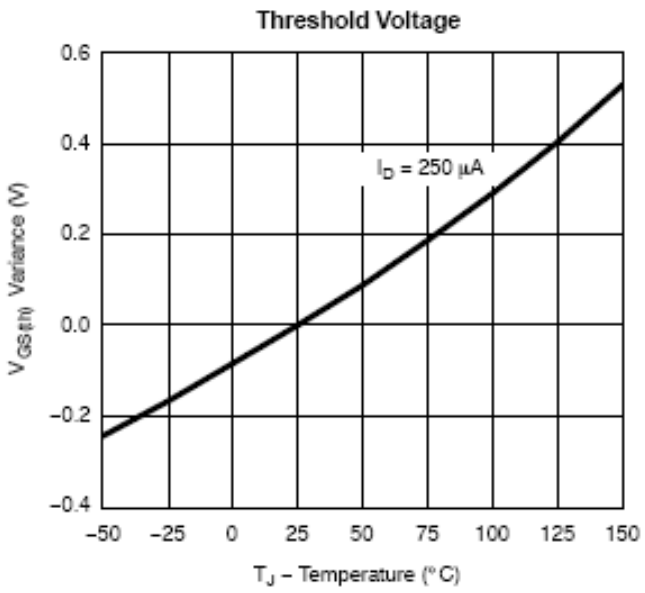
Source-Drain Diode Forward Voltage

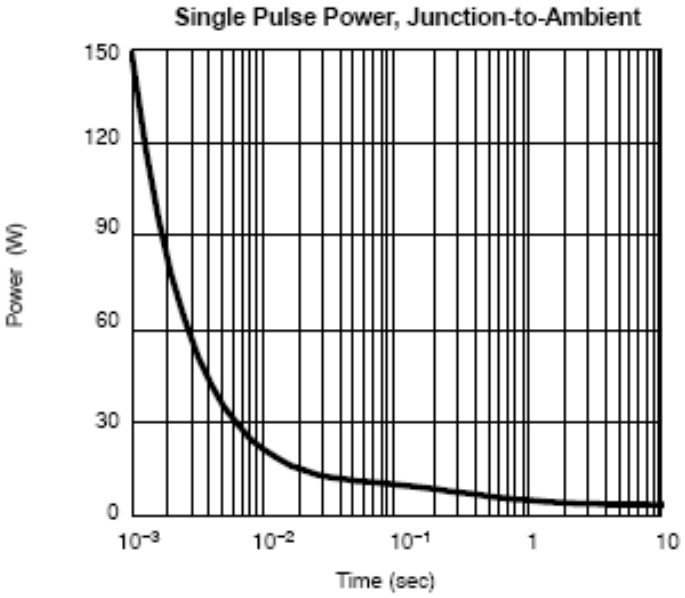


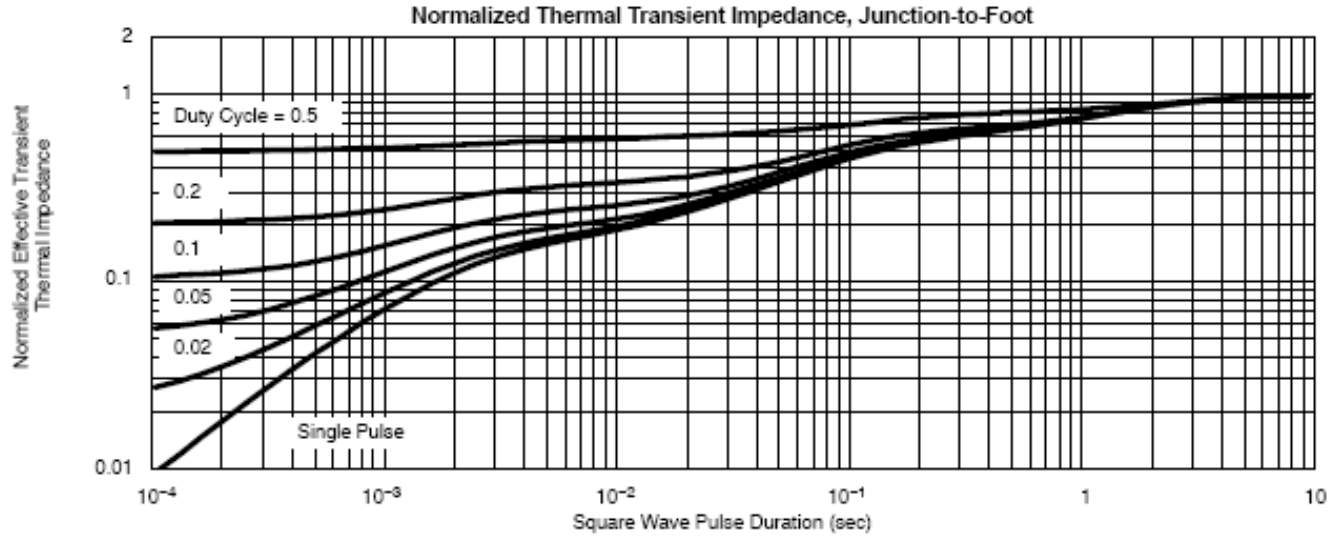
On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (PMOS)







7F-2, No.3-1, Park Street
NanKang District (NKSP), Taipei, Taiwan 115
Phone: 886-2-2655-8178
Fax: 886-2-2655-8468
© http://www.syncpower.com