SPP1411
P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP1411 is the P-Channel logic 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.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

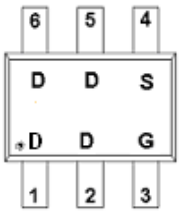
APPLICATIONS

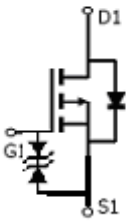
- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

FEATURES

- -20V/-4.0A,$R_{DS(ON)}$=50mΩ@V_{GS}=-4.5V
- -20V/-4.0A,$R_{DS(ON)}$=65mΩ@V_{GS}=-2.5V
- -20V/-2.3A,$R_{DS(ON)}$=120mΩ@V_{GS}=-1.8V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- ESD protected
- SOT-363 (SC–70–6L) package design

PIN CONFIGURATION(SOT-363 / SC-70-6L)





PART MARKING

Y : Year Code
W : Week Code

SPP1411
P-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

Pin	Symbol	Description
3	G	Gate
4	S	Source
1 , 2 , 5, 6	D	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPP1411S36RGB	SOT-363	411

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)
※ SPP1411S36RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

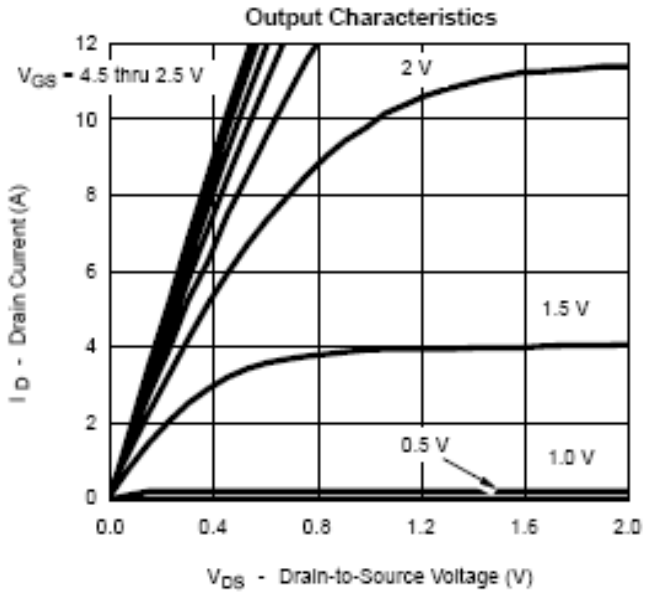
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate –Source Voltage		V_{GSS}	±12	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	-4.0	A
	T_A=70℃		-2.8	
Pulsed Drain Current		I_{DM}	-12	A
Continuous Source Current(Diode Conduction)		I_S	-1.0	A
Power Dissipation	T_A=25℃	P_D	0.95	W
	T_A=70℃		0.51	
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	105	℃/W

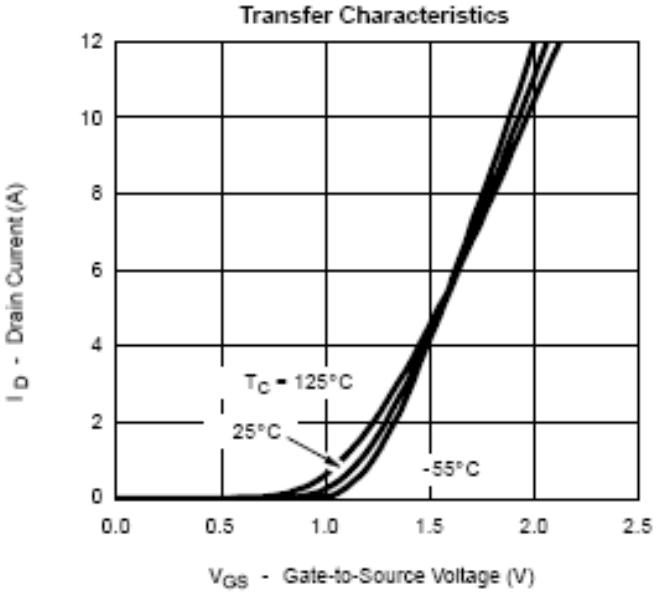
ELECTRICAL CHARACTERISTICS

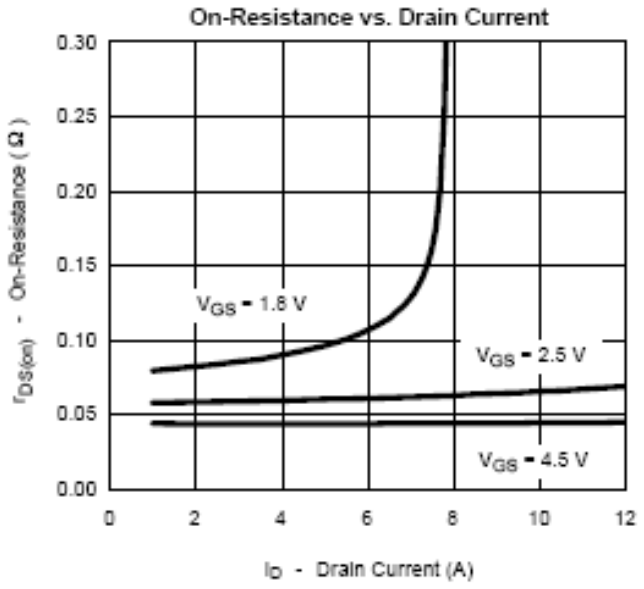
(T_A=25℃ Unless otherwise noted)

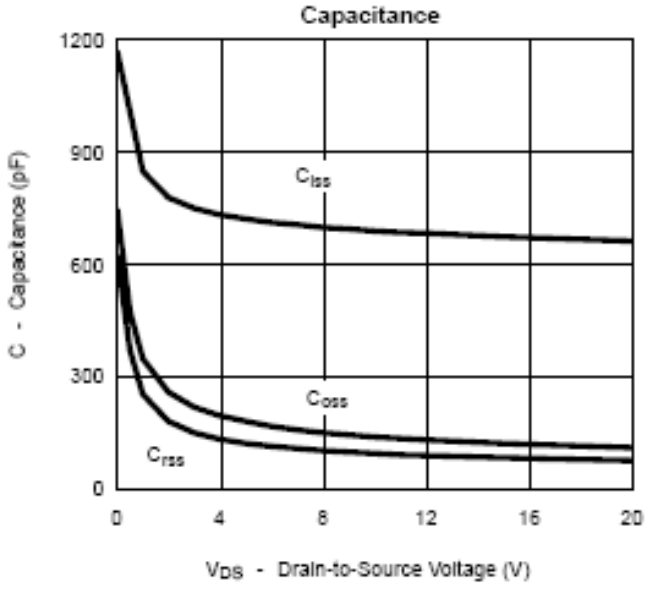
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250uA	-0.3		-0.9	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±8V			±10	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V			-1	uA
		V_{DS}=-20V,V_{GS}=0V T_J=55℃			-10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦-5V,V_{GS}=-4.5V	-6			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-4A		0.045	0.050	Ω
		V_{GS}=-2.5V,I_D=-4A		0.057	0.065	
		V_{GS}=-1.8V,I_D=-2.3A		0.110	0.120	
Forward Transconductance	gfs	V_{DS}=-5.0V,I_D=-3.3A		3		S
Diode Forward Voltage	V_{SD}	I_S=-1.6A,V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-10V,V_{GS}=-4.5V I_D=-4A		10		nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.2		
Input Capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0V f=1MHz		750		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			80		
Turn-On Time	$t_{d(on)}$	V_{DD}=-10V,R_L=2.5Ω R_G=3Ω,V_{GS}=-4.5V		15.6		nS
	t_r			11.2		
Turn-Off Time	$t_{d(off)}$			23.1		
	t_f			32.7		

TYPICAL CHARACTERISTICS



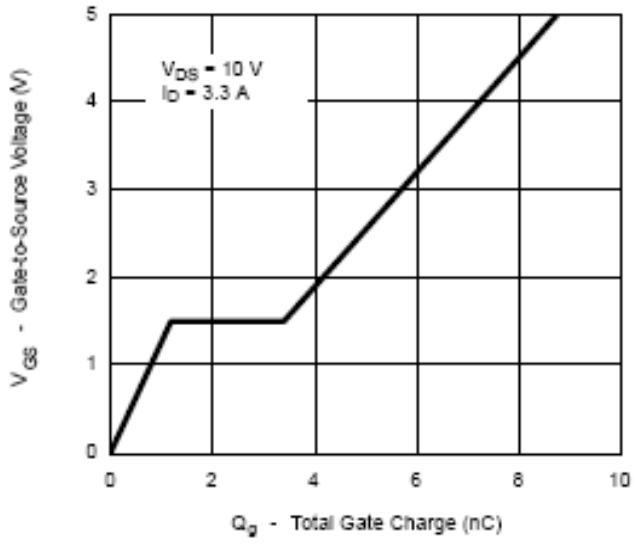




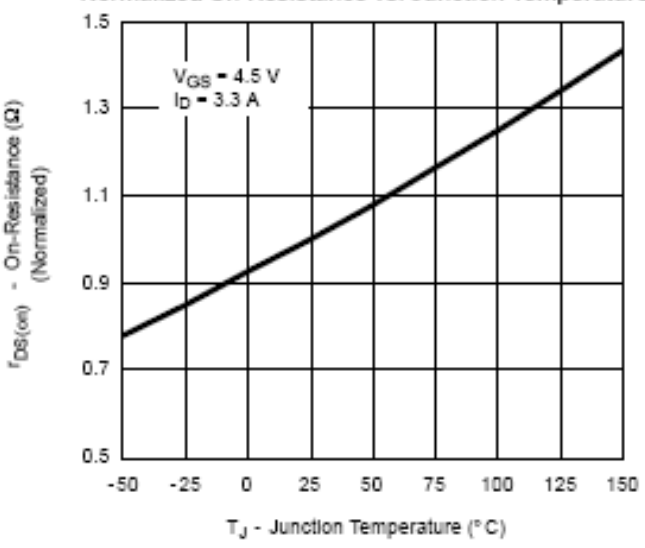


TYPICAL CHARACTERISTICS

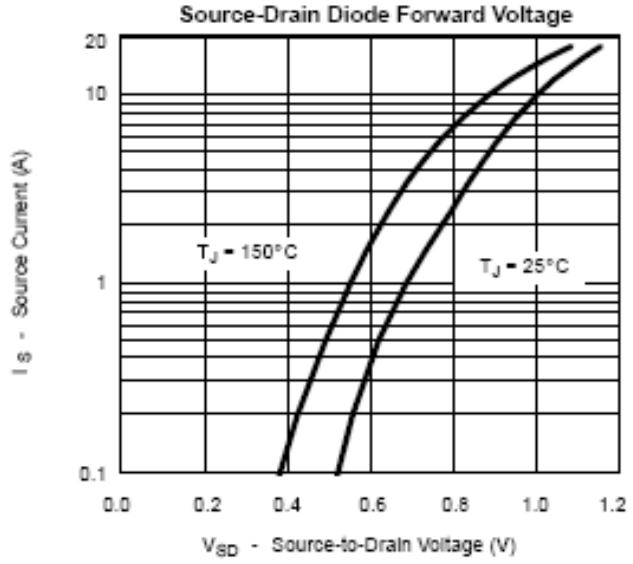
Gate Charge



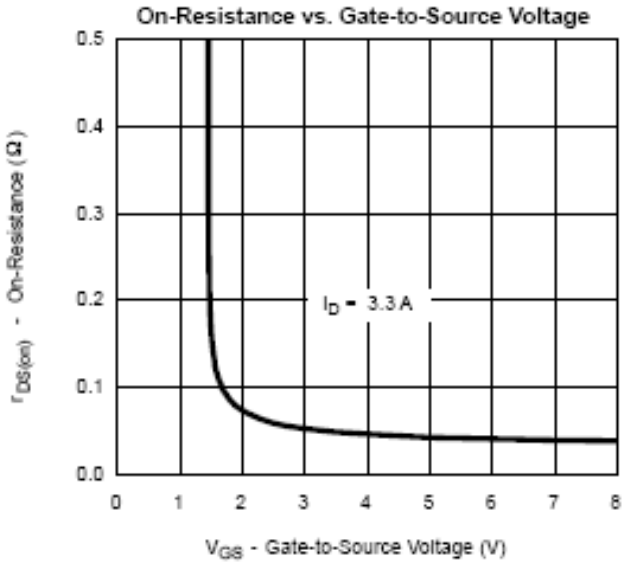
Normalized On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



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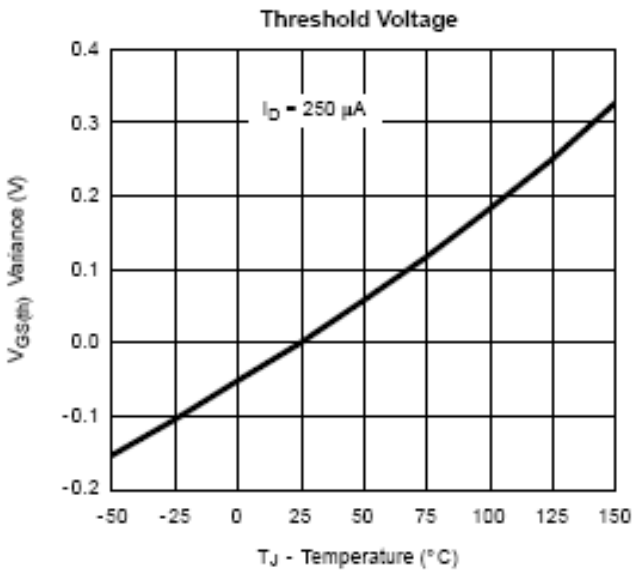

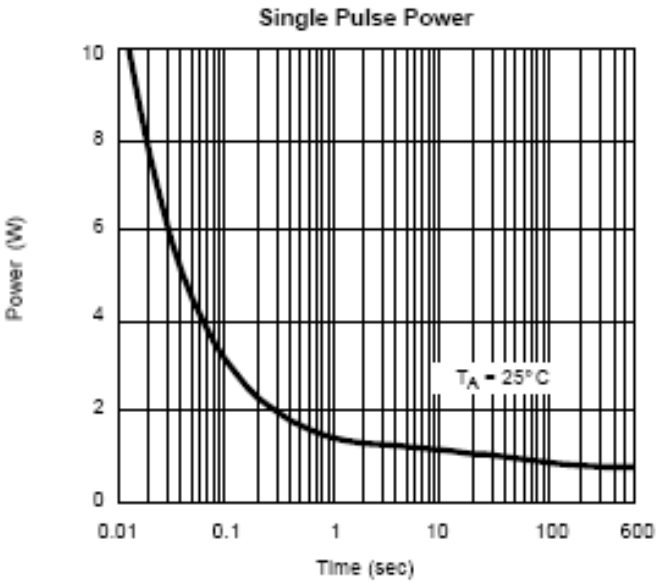

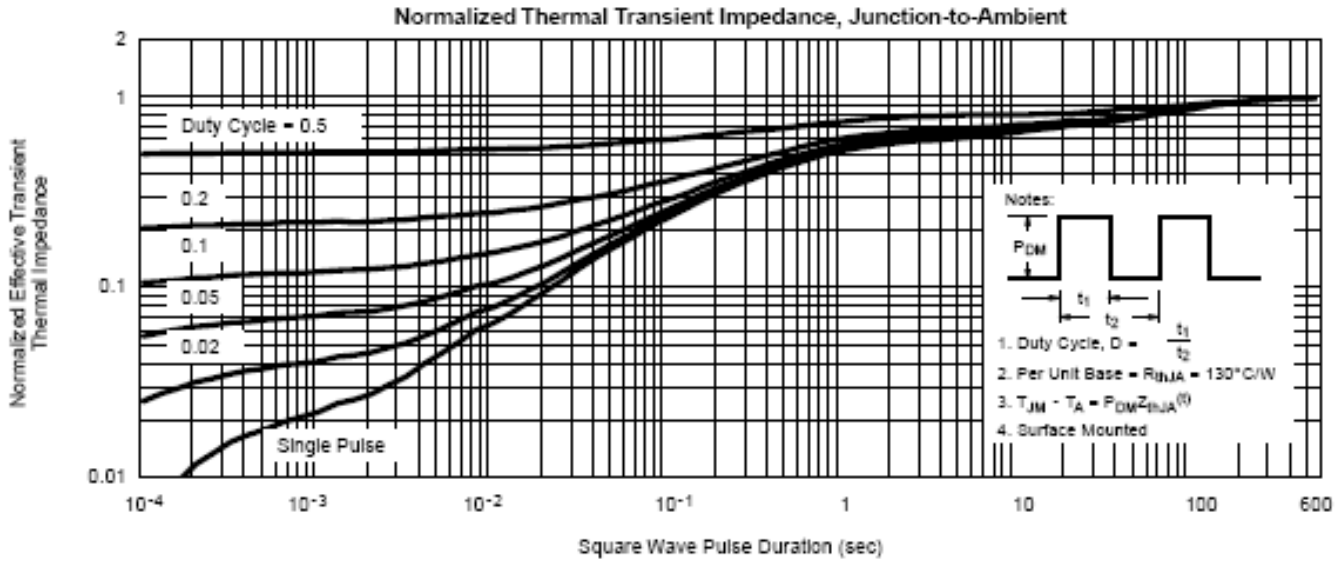

SYNC Power Corporation
7F-2, No.3-1, Park Street
NanKang District (NKSP), Taipei, Taiwan 115
Phone: 886-2-2655-8178
Fax: 886-2-2655-8468
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