



SPP1413

P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP1413 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 where high-side switching , and low in-line power loss are needed in a very small outline surface mount package.

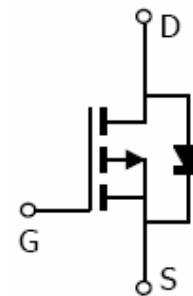
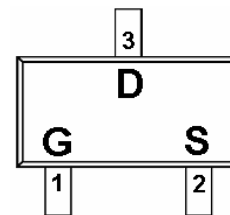
FEATURES

- ◆ -20V/-2.4A, $R_{DS(ON)}=130m\Omega@V_{GS}=-10V$
- ◆ -20V/-2.9A, $R_{DS(ON)}=150m\Omega@V_{GS}=-4.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-323 (SC-70) package design

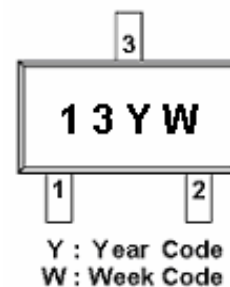
APPLICATIONS

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

PIN CONFIGURATION (SOT-323 ; SC-70)



PART MARKING





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PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPP1413S32RG	SOT-323	13YW

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)

※ SPP1413S32RG : Tape Reel ; Pb – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C 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°C)	T _A =25°C	I _D	-2.9	A
	T _A =70°C		-2.0	
Pulsed Drain Current		I _{DM}	-8	A
Continuous Source Current(Diode Conduction)		I _S	-1.4	A
Power Dissipation	T _A =25°C	P _D	0.33	W
	T _A =70°C		0.21	
Operating Junction Temperature		T _J	-55/150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient		R _{θJA}	105	°C/W



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ELECTRICAL CHARACTERISTICS

(T_A=25°C Unless otherwise noted)

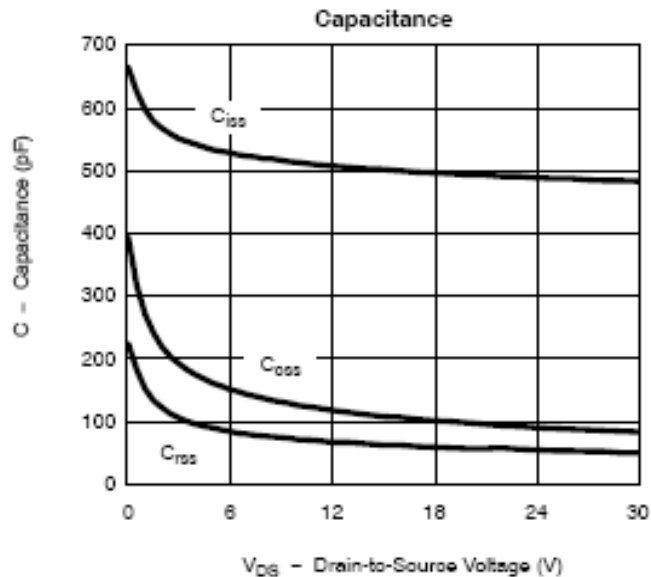
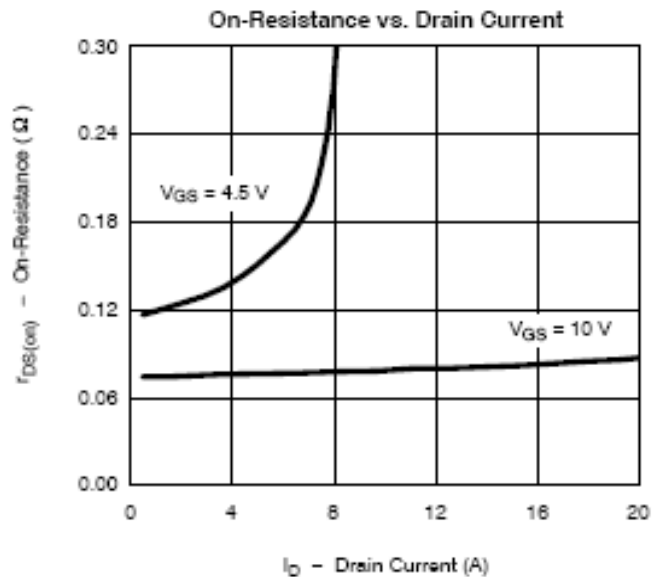
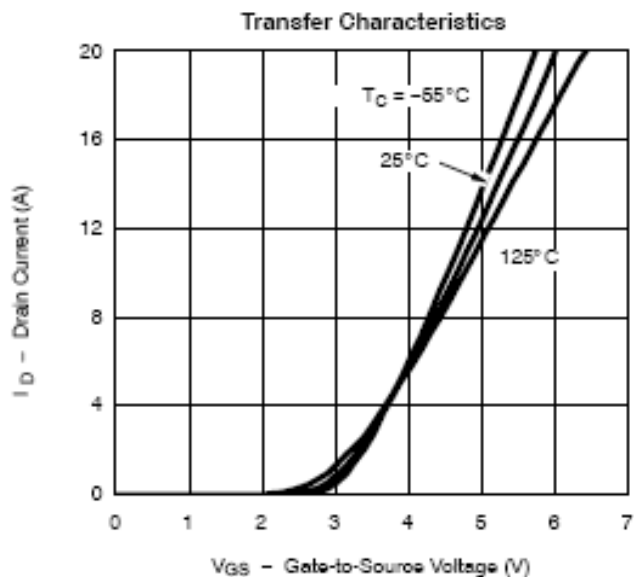
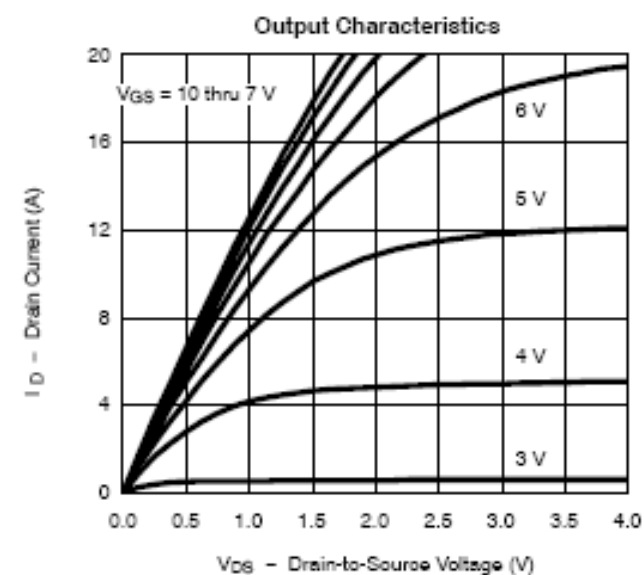
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250uA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-0.5		-1.8	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	uA
		V _{DS} =-20V, V _{GS} =0V T _J =85°C			-5	
On-State Drain Current	I _{D(on)}	V _{DS} = -5V, V _{GS} =-4.5V	-4			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-2.4A		0.090	0.130	Ω
		V _{GS} =-4.5V, I _D =-2.9A		0.125	0.150	
Forward Transconductance	g _{fs}	V _{DS} =-10V, I _D =-2.9A		6		S
Diode Forward Voltage	V _{SD}	I _S =-1.4A, V _{GS} =0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-10V I _D =-2.4A		5.8	10	nC
Gate-Source Charge	Q _{gs}			0.8		
Gate-Drain Charge	Q _{gd}			1.5		
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V f=1MHz		226		pF
Output Capacitance	C _{oss}			87		
Reverse Transfer Capacitance	C _{rss}			19		
Turn-On Time	t _{d(on)}	V _{DD} =-10V, R _L =15Ω I _D =-1.0A, V _{GEN} =-10V R _G =6Ω		9	20	ns
	t _r			9	20	
Turn-Off Time	t _{d(off)}			18	35	
	t _f			6	20	



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TYPICAL CHARACTERISTICS

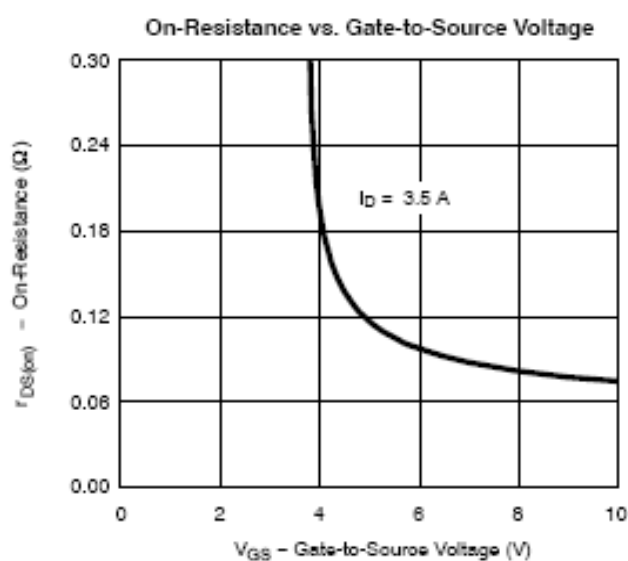
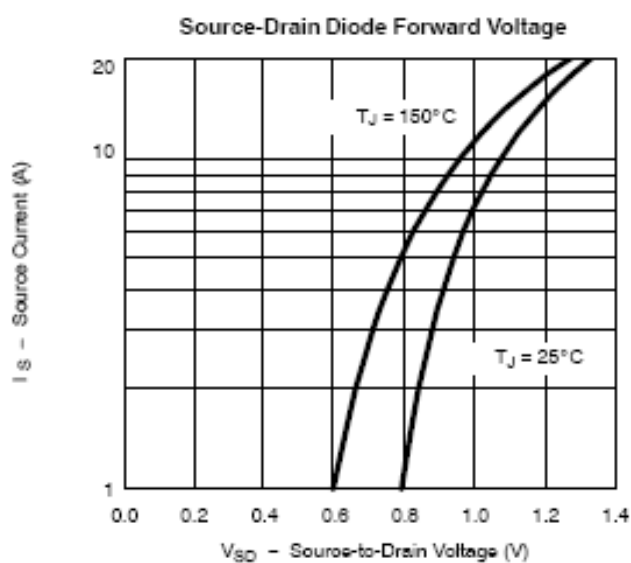
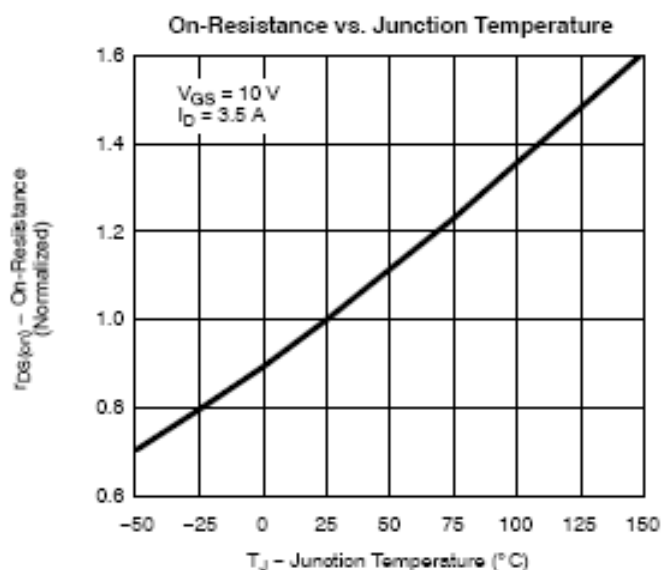
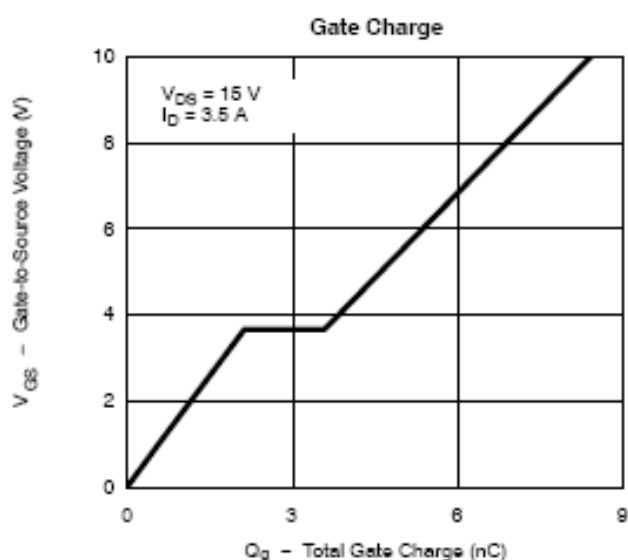




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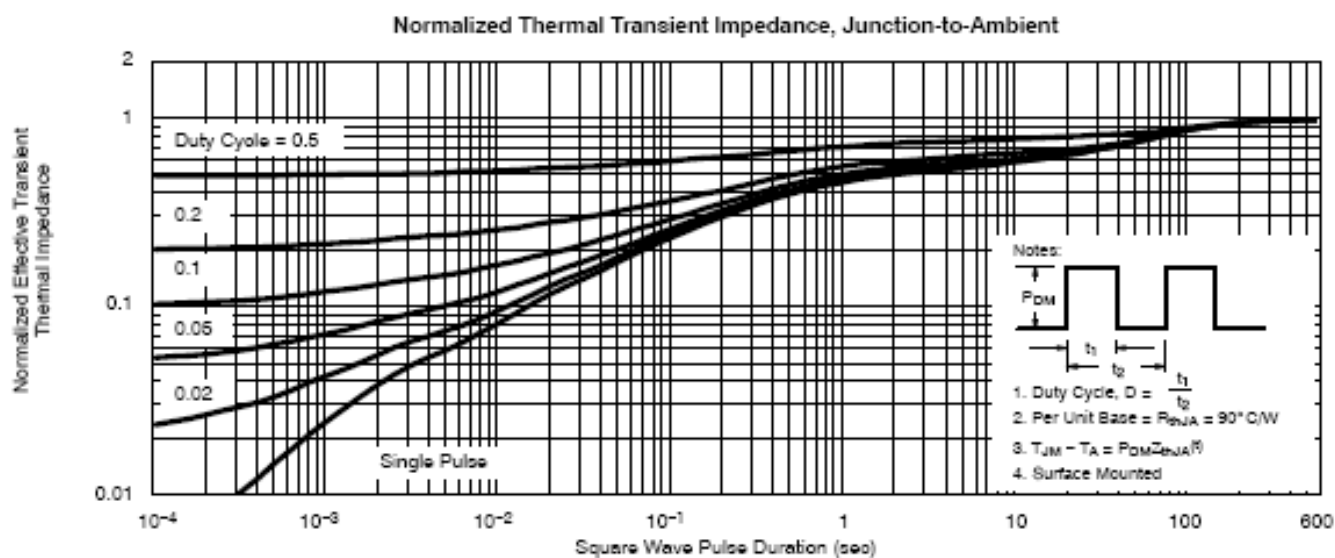
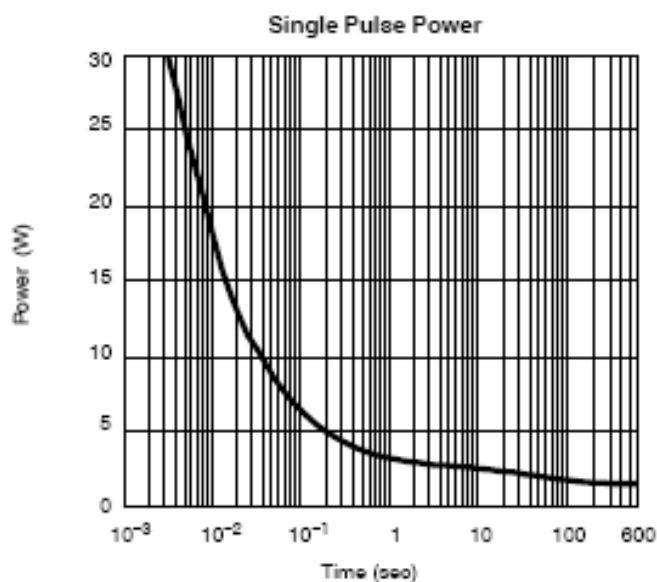
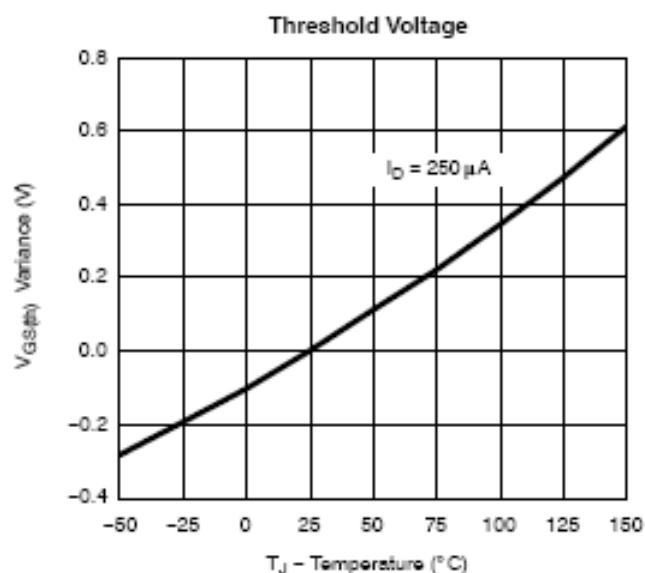




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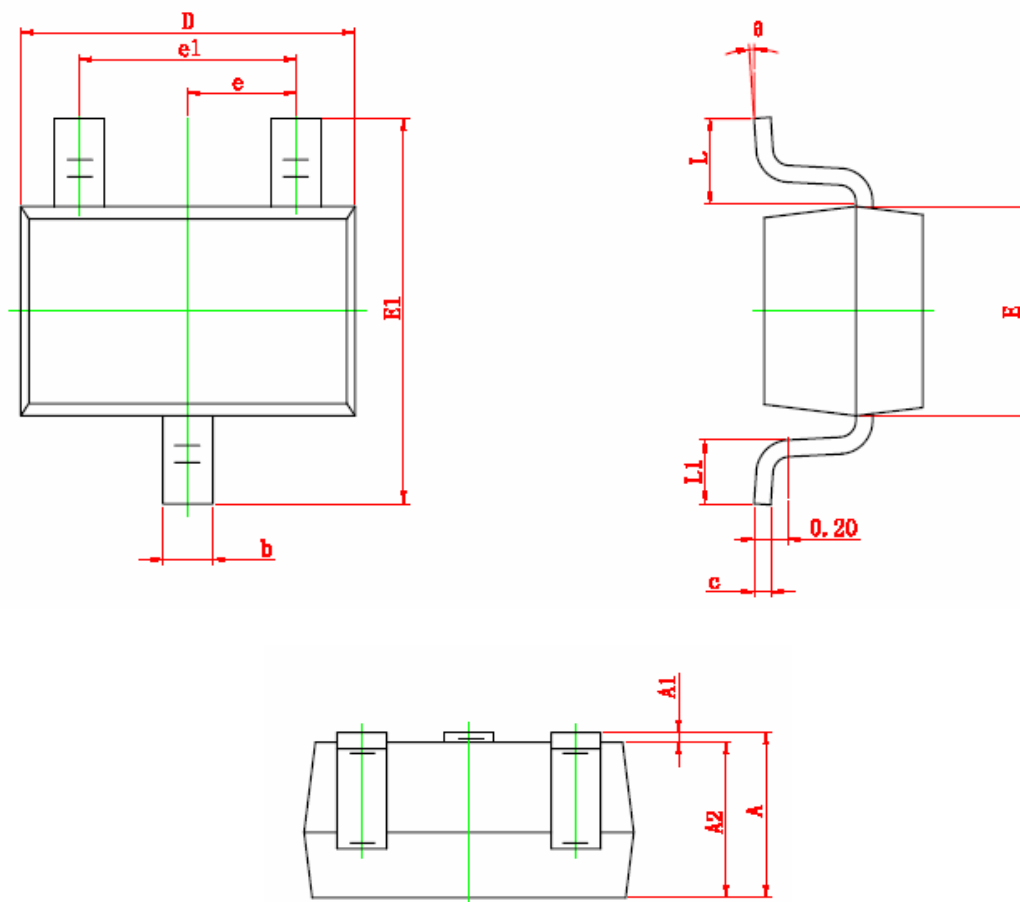




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SOT-323 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



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