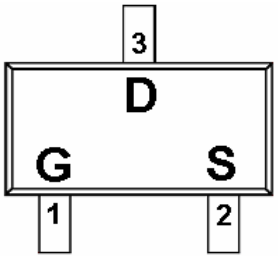
SPP1013
P-Channel Enhancement Mode MOSFET

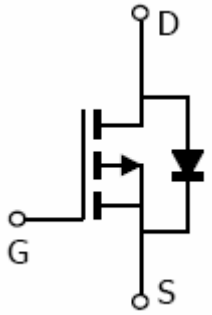
DESCRIPTION
The SPP1013 is the P-Channel enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are particularly 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
- Drivers : Relays/Solenoids/Lamps/Hammers
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

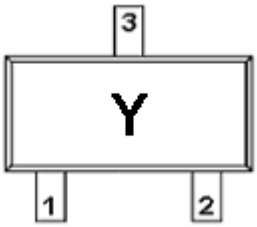
FEATURES
- P-Channel
  -20V/0.45A,$R_{DS(ON)}$= 0.52Ω@V_{GS}=-4.5V
  -20V/0.35A,$R_{DS(ON)}$= 0.70Ω@V_{GS}=-2.5V
  -20V/0.25A,$R_{DS(ON)}$= 0.95Ω@V_{GS}=-1.8V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- SOT-523 (SC-89) package design

PIN CONFIGURATION(SOT-523 / SC-89)





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
SPP1013S52RG	SOT-523	Y

※ SPP1013S52RG : Tape Reel ; Pb – 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	-0.45	A
	T_A=80℃		-0.35	
Pulsed Drain Current		I_{DM}	-1.0	A
Continuous Source Current(Diode Conduction)		I_S	-0.3	A
Power Dissipation	T_A=25℃	P_D	0.27	W
	T_A=70℃		0.16	
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃

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	-0.35		-0.8	
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=55℃			-5	
On-State Drain Current	$I_{D(on)}$	V_{DS}≤ -4.5V,V_{GS} =-5V	-0.7			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-0.45A		0.42	0.52	Ω
		V_{GS}=-2.5V,I_D=-0.35A		0.58	0.70	
		V_{GS}=-1.8V,I_D=-0.25A		0.75	0.95	
Forward Transconductance	gfs	V_{DS}=-10V,I_D=-0.25A		0.4		S
Diode Forward Voltage	V_{SD}	I_S=-0.15A,V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-10V,V_{GS}=-4.5V ,I_D ≡-0.6A		1.5	2.0	nC
Gate-Source Charge	Q_{gs}			0.3		
Gate-Drain Charge	Q_{gd}			0.35		
Turn-On Time	$t_{d(on)}$	V_{DD}=-10V,R_L=10Ω , I_D≡-0.4A V_{GEN}=-4.5V ,R_G=6Ω		5	10	ns
	t_r			15	25	
Turn-Off Time	$t_{d(off)}$			8	15	
	t_f			1.4	1.8	

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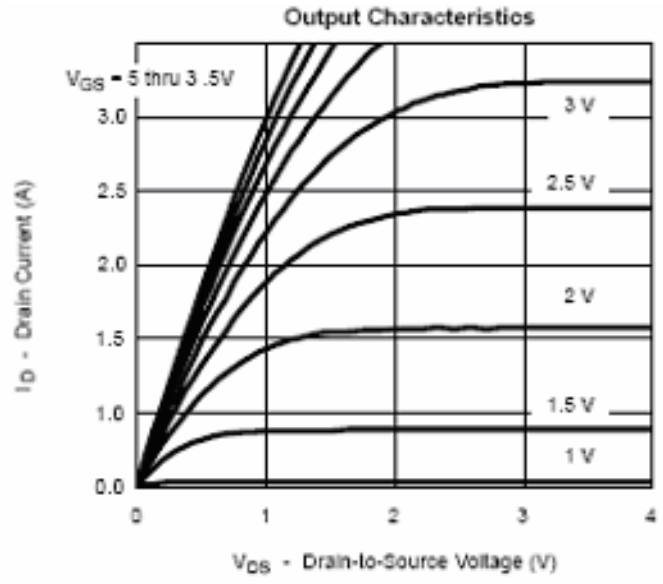
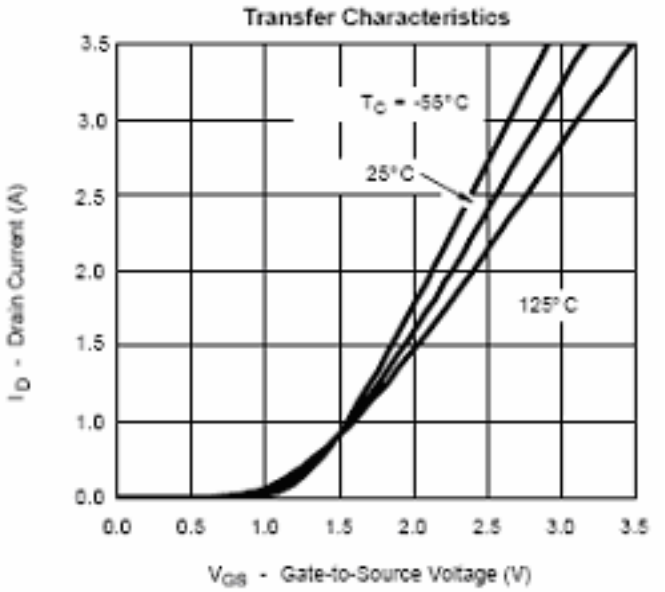
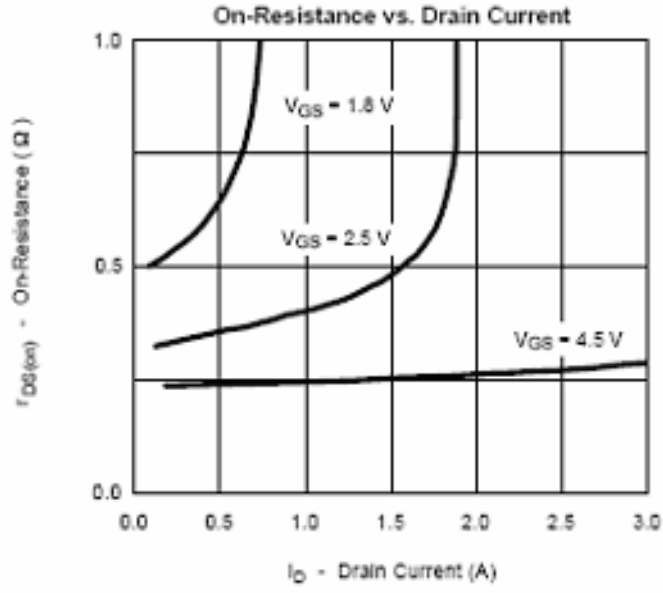
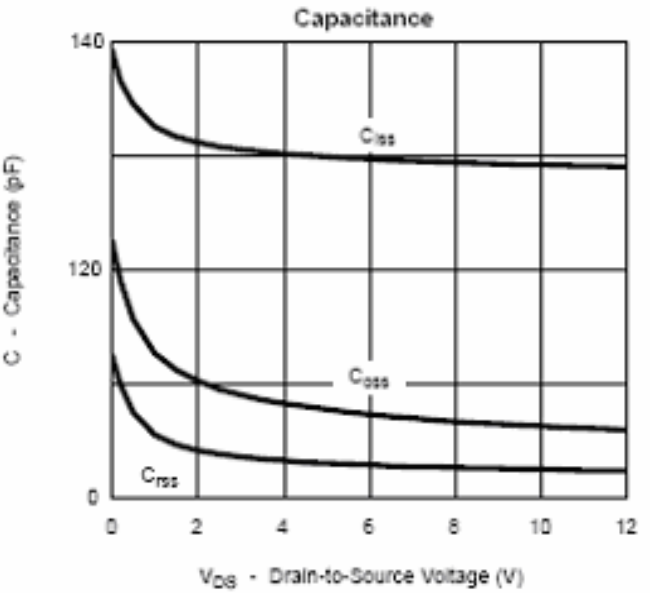
TYPICAL CHARACTERISTICS

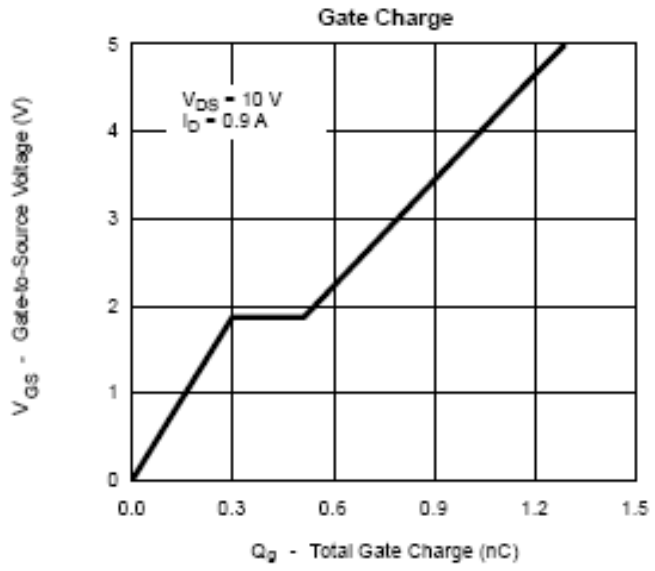


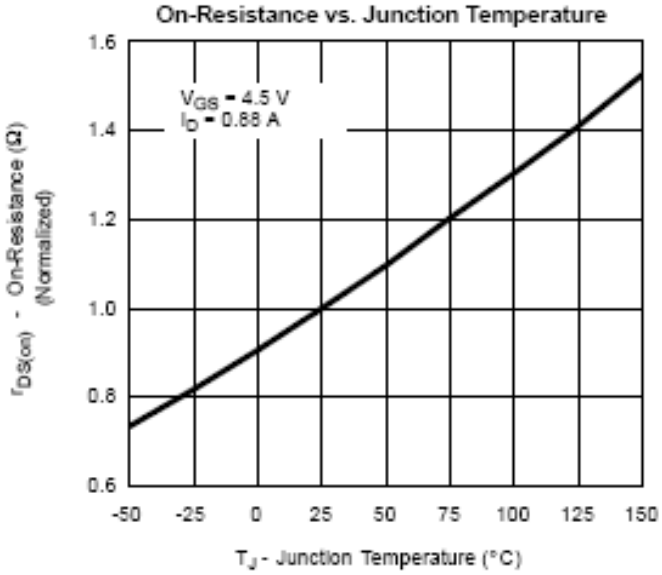


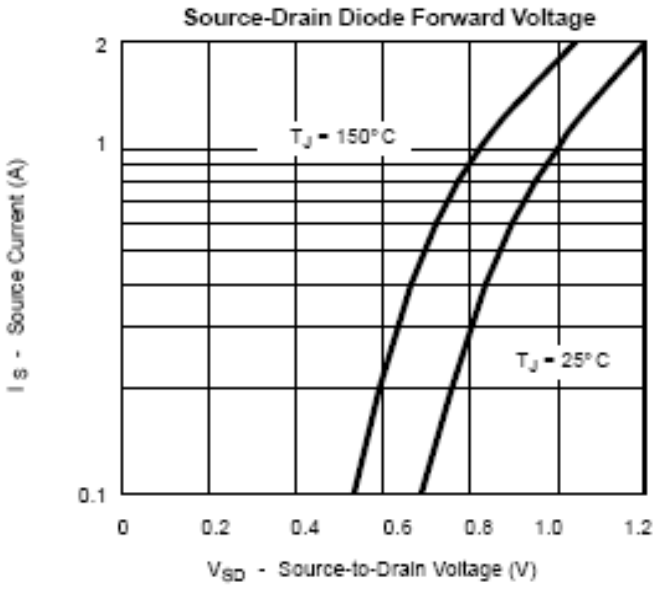


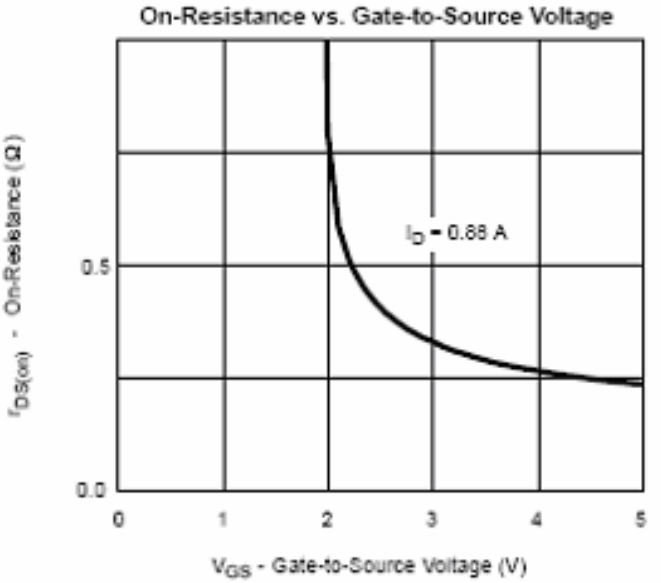


TYPICAL CHARACTERISTICS









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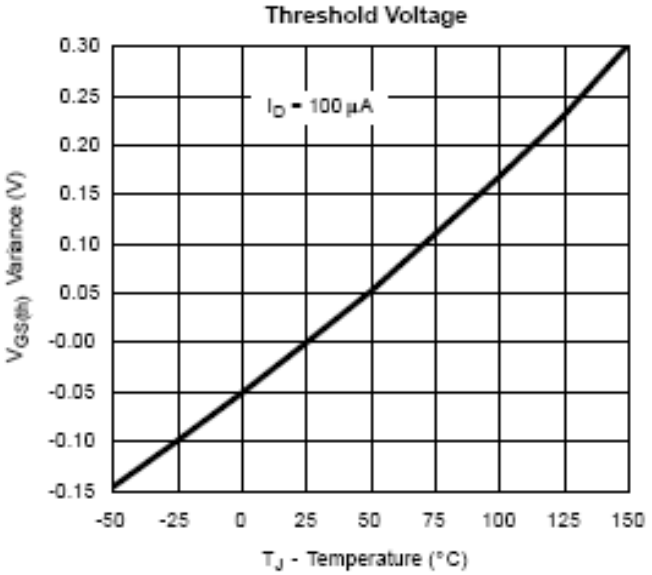
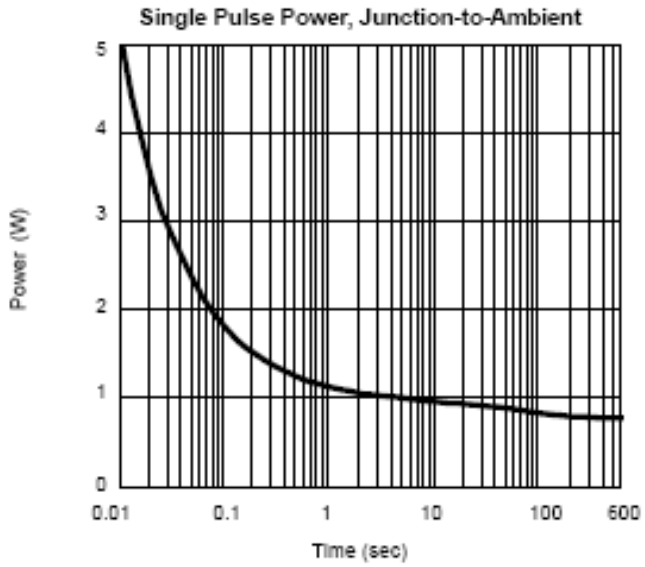
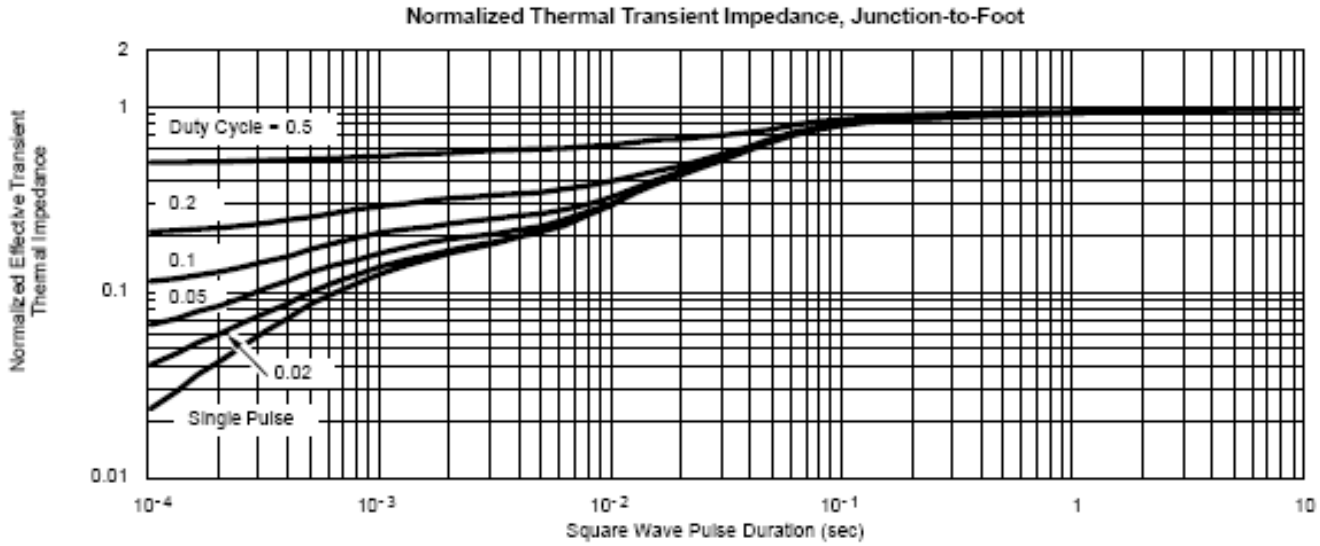
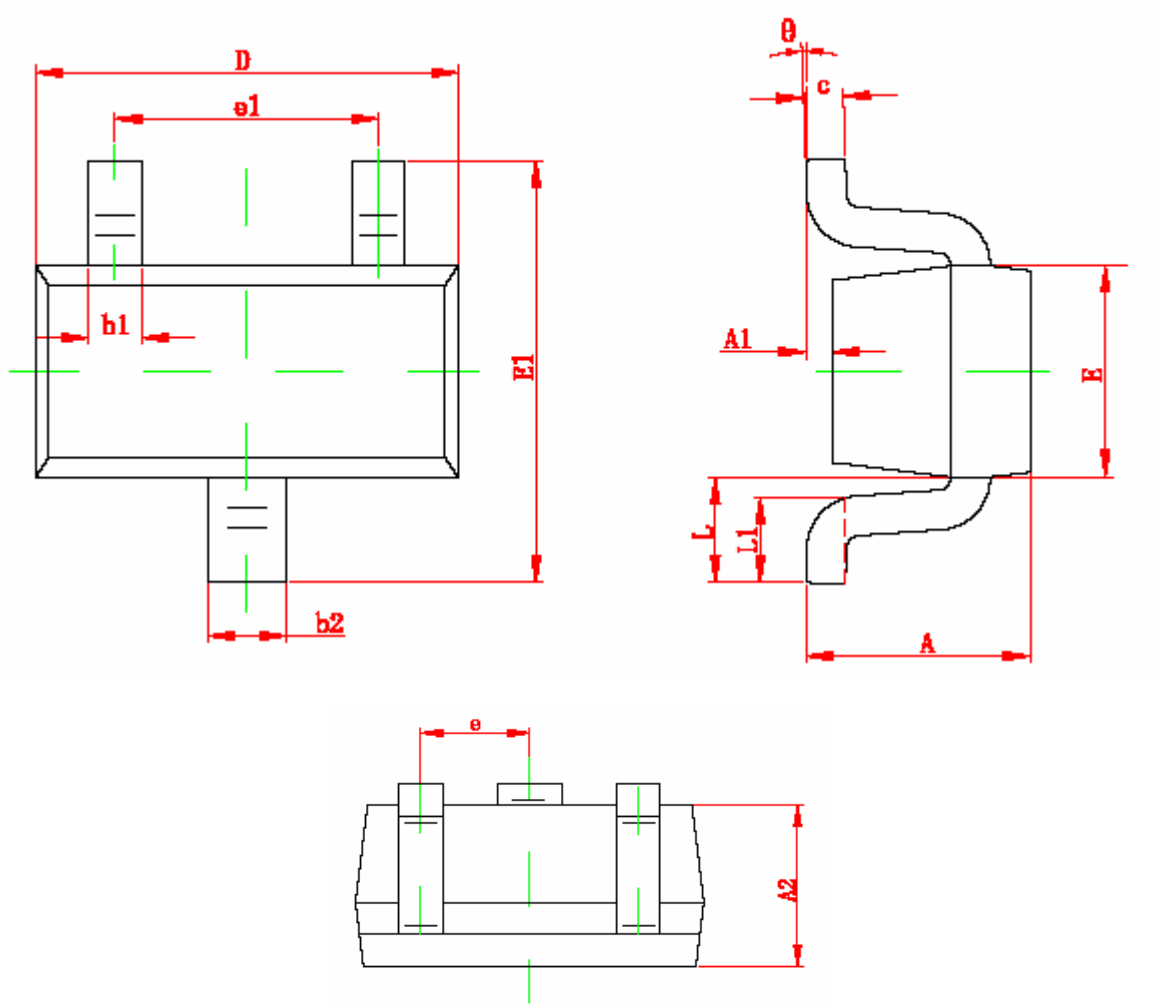






SOT-523 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.325	0.010	0.013
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.750	0.850	0.030	0.033
E1	1.450	1.750	0.057	0.069
e	0.500 TYP		0.020 TYP	
e1	0.900	1.100	0.035	0.043
L	0.550 REF		0.022 REF	
L1	0.280	0.440	0.011	0.017
θ	0°	4°	0°	4°

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