



SPP2331

P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP2331 is the P-Channel logic enhancement mode power field effect transistors are produced using super high cell density , DMOS trench technology. The SPP2331 has been designed specifically to improve the overall efficiency of DC/DC converters using either synchronous or conventional switching PWM controllers. It has been optimized for low gate charge, low $R_{DS(ON)}$ and fast switching speed.

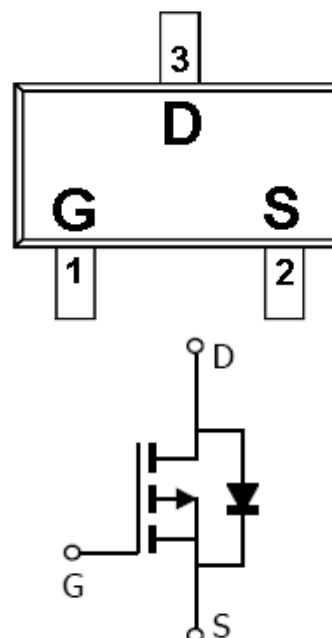
APPLICATIONS

- Powered System
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- Power Tool
- Motor Control

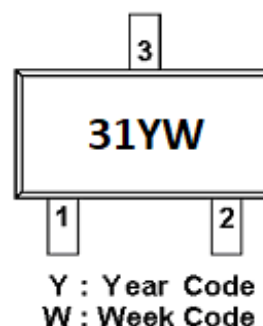
FEATURES

- ◆ $-100V/-3.0A, R_{DS(ON)}=200m\Omega @ V_{GS}=-10V$
- ◆ $-100V/-1.0A, R_{DS(ON)}=220m\Omega @ V_{GS}=-4.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-3L package design

PIN CONFIGURATION(SOT-23-3L)



PART MARKING





SPP2331

P-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPP2331S23RGB	SOT-23-3L	31

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

※ SPP2331S23RGB : Tape Reel ; Pb – Free; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V _{DSS}	-100	V
Gate –Source Voltage		V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	T _A =25°C	I _D	-3.0	A
	T _A =70°C		-2.0	
Pulsed Drain Current		I _{DM}	-20	A
Power Dissipation	T _A =25°C	P _D	2.8	W
Operating Junction Temperature		T _J	-55/150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient		R _{θJA}	62.5	°C/W



SPP2331

P-Channel Enhancement Mode MOSFET

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	-100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1.0		-3.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-80V, V _{GS} =0V T _J =25°C			-10	uA
		V _{DS} =-80V, V _{GS} =0V T _J =55°C			-100	
Continuous-Source Current	I _S	V _D =V _G =0V, Force Current			-8.5	A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-3A			200	mΩ
		V _{GS} =-4.5V, I _D =-1A			220	
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V			-1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-50V, V _{GS} =-10V I _D =-1A		18		nC
Gate-Source Charge	Q _{gs}			4.25		
Gate-Drain Charge	Q _{gd}			7.0		
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V f=1MHz		1310		pF
Output Capacitance	C _{oss}			88		
Reverse Transfer Capacitance	C _{rss}			55		
Turn-On Time	td(on)	V _{DD} =-50V, I _D =-0.5A, V _{GEN} =-10V, R _G =3.3Ω		8.5		nS
	tr			12		
Turn-Off Time	td(off)			50		
	tf			35		

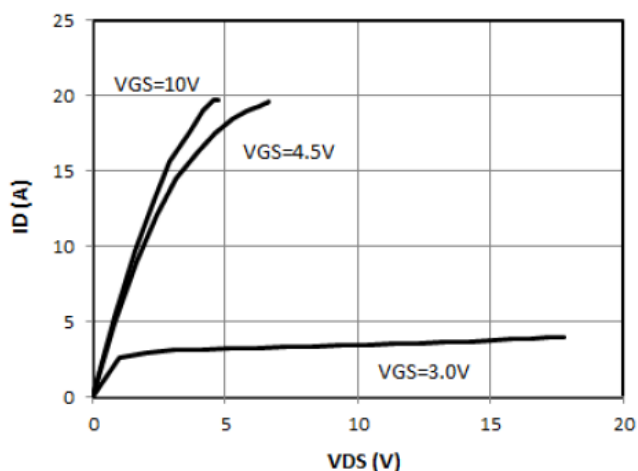


SPP2331

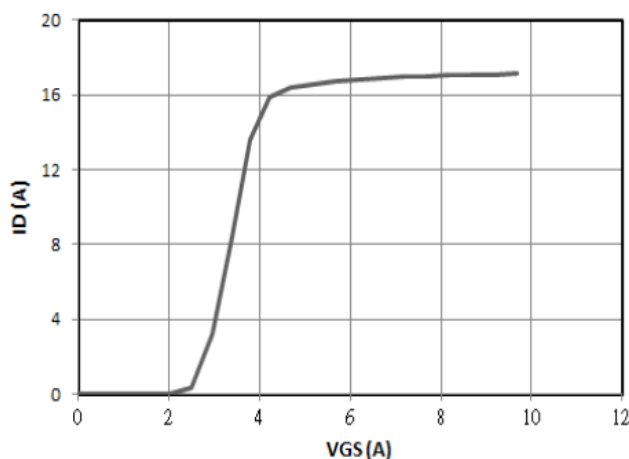
P-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS

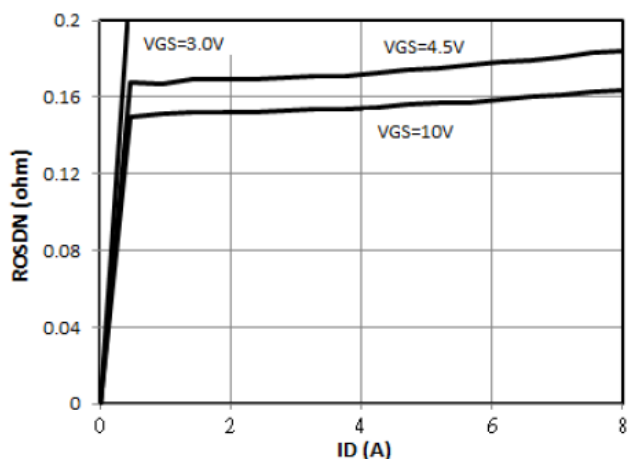
TYPICAL OUTPUT CHARACTERISTICS



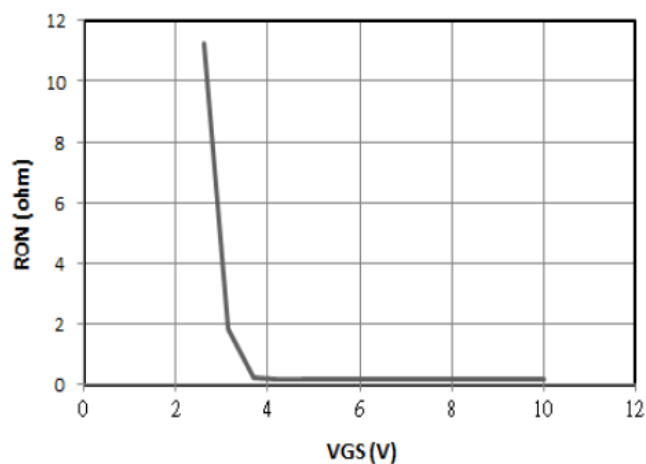
TYPICAL TRANSFER CHARACTERISTICS



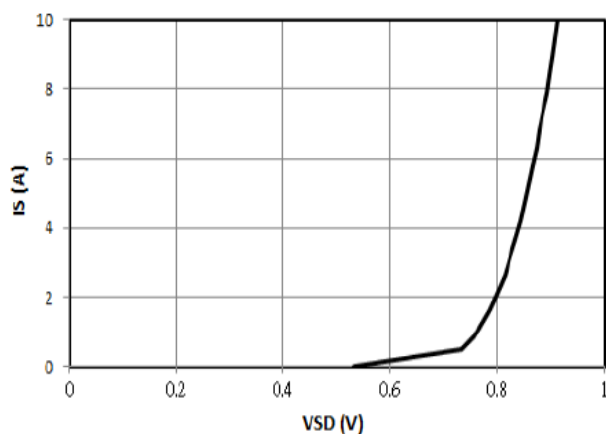
ON-RESISTANCE VS. DRAIN CURRENT AND GATE VOLTAGE



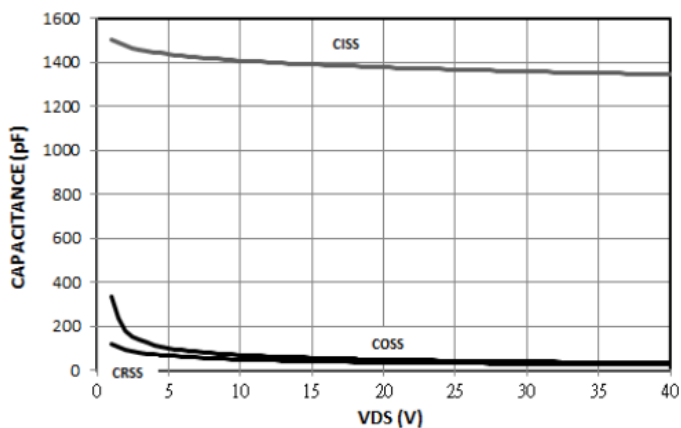
ON-RESISTANCE VS. GATE-SOURCE VOLTAGE



TYPICAL SOURCE-DRAIN DIODE FORWARD VOLTAGE



TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



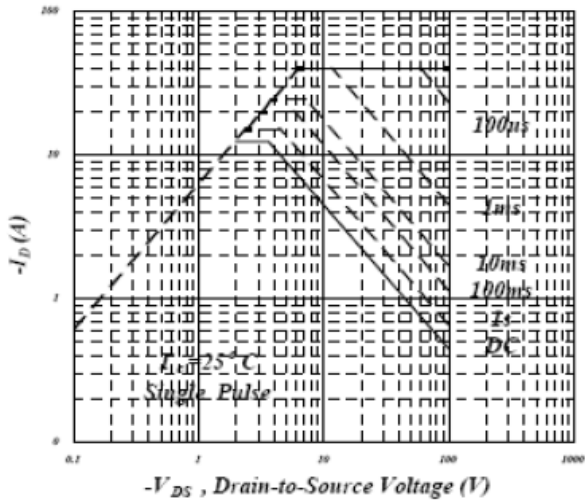


SPP2331

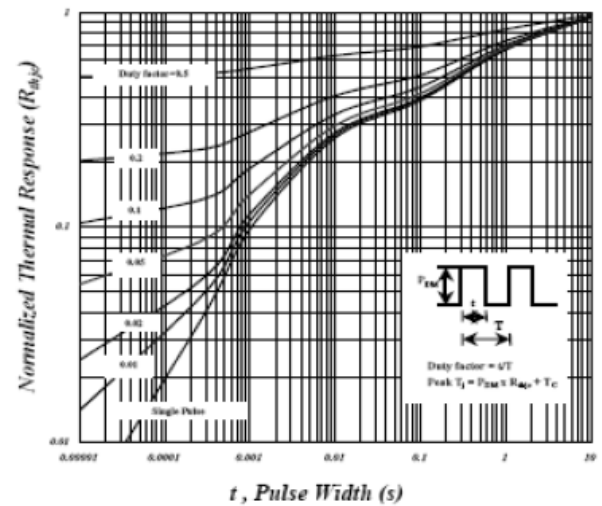
P-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS

Maximum Safe Operating Area



Effective Transient Thermal Impedance





SPP2331

P-Channel Enhancement Mode MOSFET

Information provided is alleged to be exact and consistent. SYNC Power Corporation presumes no responsibility for the penalties of use of such information or for any violation of patents or other rights of third parties which may result from its use. No license is granted by allegation or otherwise under any patent or patent rights of SYNC Power Corporation. Conditions mentioned in this publication are subject to change without notice. This publication surpasses and replaces all information previously supplied. SYNC Power Corporation products are not authorized for use as critical components in life support devices or systems without express written approval of SYNC Power Corporation.

© The SYNC Power logo is a registered trademark of SYNC Power Corporation

© 2022 SYNC Power Corporation – Printed in Taiwan – All Rights Reserved

SYNC Power Corporation

7F-2, No.3-1, Park Street

NanKang District (NKSP), Taipei, Taiwan, 115, R.O.C

Phone: 886-2-2655-8178

Fax: 886-2-2655-8468

© <http://www.syncpower.com>