



SPP9433W

P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP9433W 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.

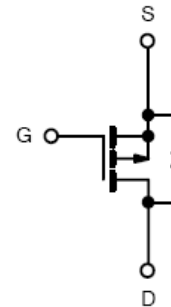
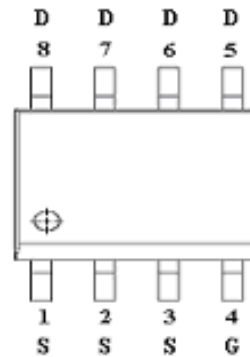
FEATURES

- ◆ $-30V/-6A, R_{DS(ON)} = 42m\Omega @ V_{GS} = -10V$
- ◆ $-30V/-3A, R_{DS(ON)} = 78m\Omega @ V_{GS} = -4.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOP-8P package design

APPLICATIONS

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

PIN CONFIGURATION(SOP – 8P)



PART MARKING





SPP9433W

P-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPP9433WS8RGB	SOP- 8P	SPP9433W

※ SPP9433WS8RGB : 13" Tape Reel ; Pb – Free ; Halogen - Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	V _{DSS}	-30	V	
Gate –Source Voltage	V _{GSS}	±20	V	
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C	-6	A
		T _A =70°C	-4	
Pulsed Drain Current	I _{DM}	-12	A	
Continuous Source Current(Diode Conduction)	I _S	-6	A	
Power Dissipation	P _D	2.08	W	
Operating Junction Temperature	T _J	-55/150	°C	
Storage Temperature Range	T _{STG}	-55/150	°C	
Thermal Resistance-Junction to Ambient	R _{θJA}	60	°C/W	



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ELECTRICAL CHARACTERISTICS

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Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0		-2.5	V
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	μA
		V _{DS} =-24V, V _{GS} =0V T _J =55°C			-5	
On-State Drain Current	I _{D(on)}	V _{DS} ≤ -5V, V _{GS} =-10V	-6			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-6A		0.035	0.042	Ω
		V _{GS} =-4.5V, I _D =-3A		0.065	0.078	
Forward Transconductance	g _{fs}	V _{DS} =-10.0V, I _D =-6A		6		S
Diode Forward Voltage	V _{SD}	I _S =-6A, V _{GS} =0V			-1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-20V, V _{GS} =-4.5V I _D =-6A		6.4		nC
Gate-Source Charge	Q _{gs}			2.7		
Gate-Drain Charge	Q _{gd}			3.1		
Input Capacitance	C _{iss}	V _{DS} =-24V, V _{GS} =0V f=1MHz		650		pF
Output Capacitance	C _{oss}			270		
Reverse Transfer Capacitance	C _{rss}			104		
Turn-On Time	t _{d(on)}	V _{DD} =-12V, I _D =-5.0A, V _{GEN} =-10V R _G =3.3Ω		9		ns
	t _r			16		
Turn-Off Time	t _{d(off)}			21		
	t _f			22		



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TYPICAL CHARACTERISTICS

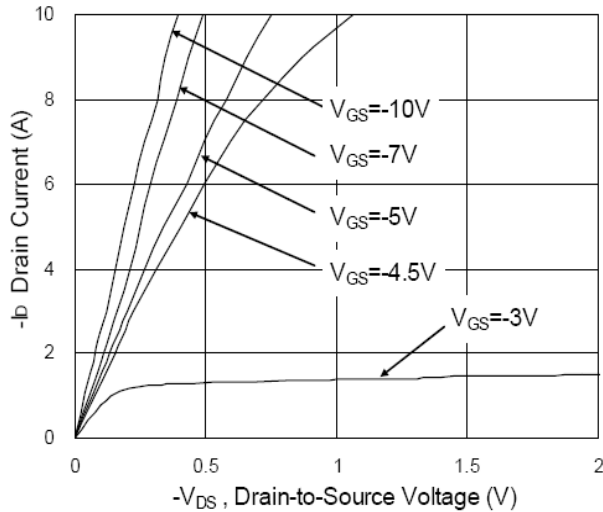


Fig. 1 Typical Output Characteristics

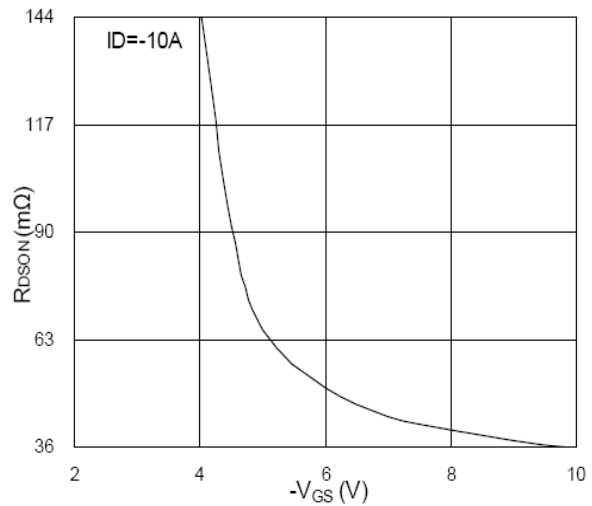


Fig. 2 On-Resistance vs. Gate Voltage

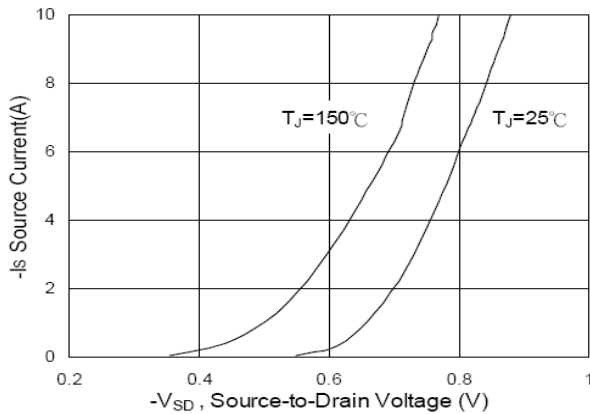


Fig. 3 Forward characteristics of Diodes

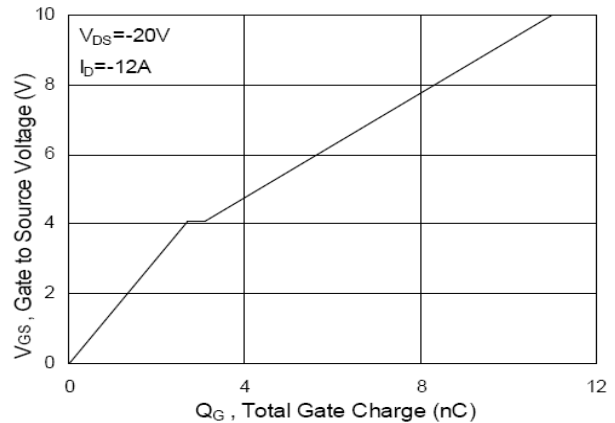


Fig. 4 Gate Charge Characteristics

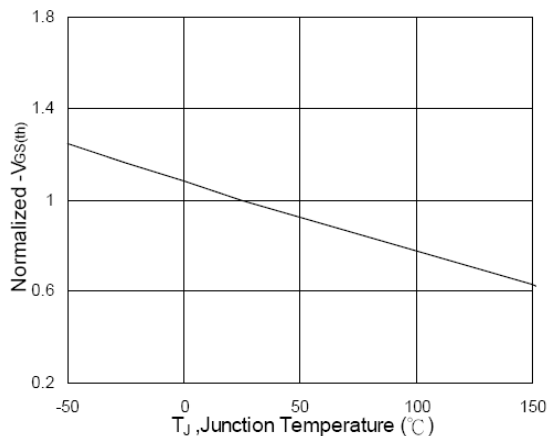


Fig. 5 V_{GS} vs. Junction Temperature

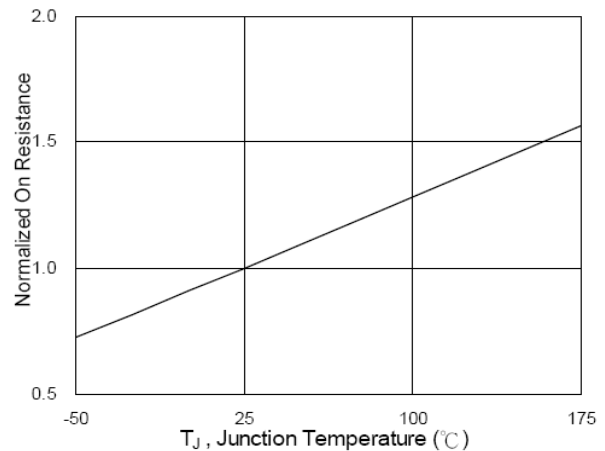


Fig. 6 On-Resistance vs Junction Temp



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TYPICAL CHARACTERISTICS

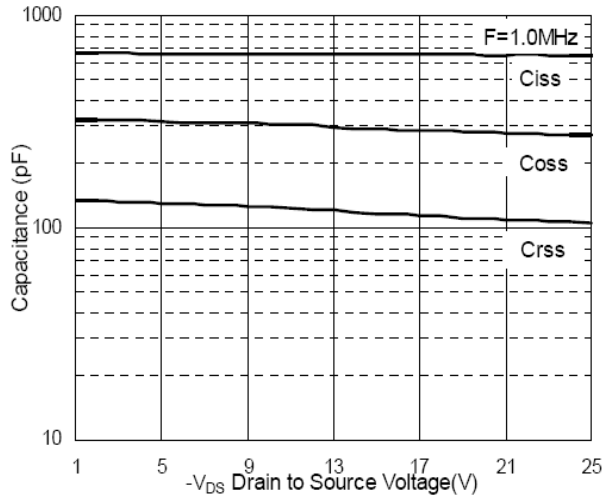


Fig. 7 Typical Capacitance Characteristics

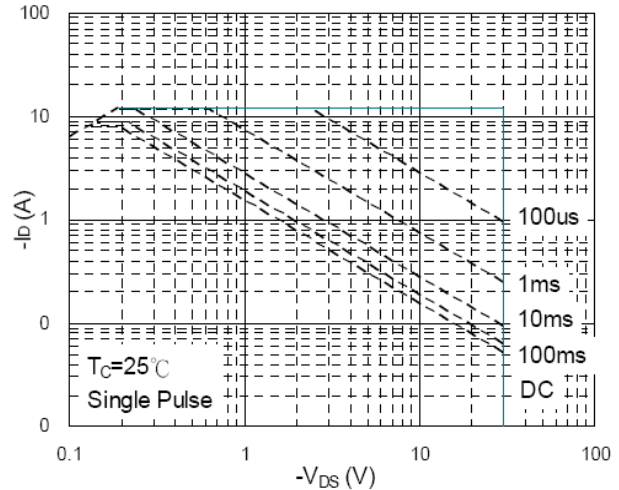


Fig. 8 Maximum Safe Operation Area

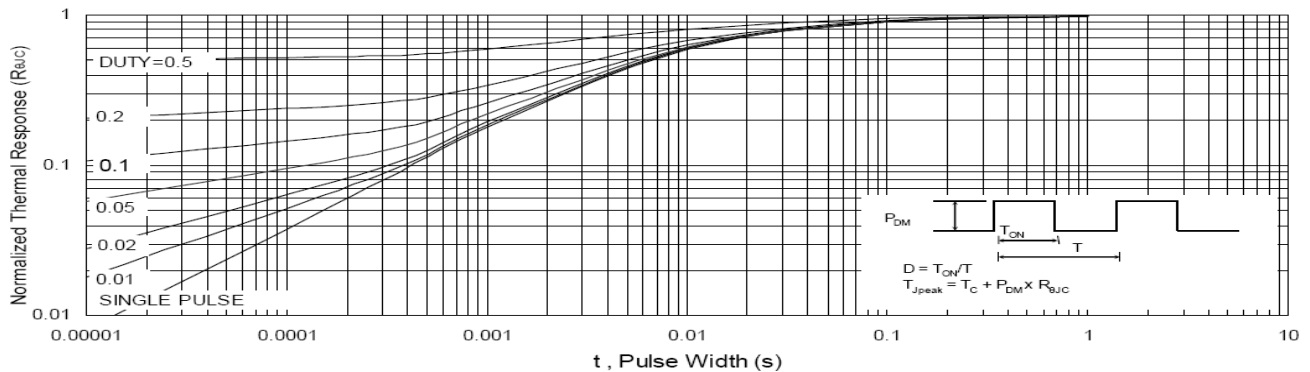


Fig. 9 Effective Transient Thermal Impedance

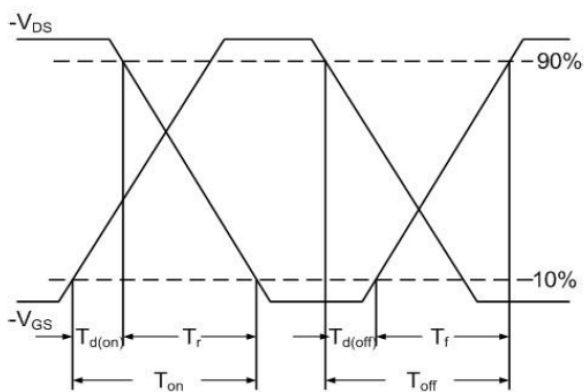


Fig. 10 Switching Time Waveform

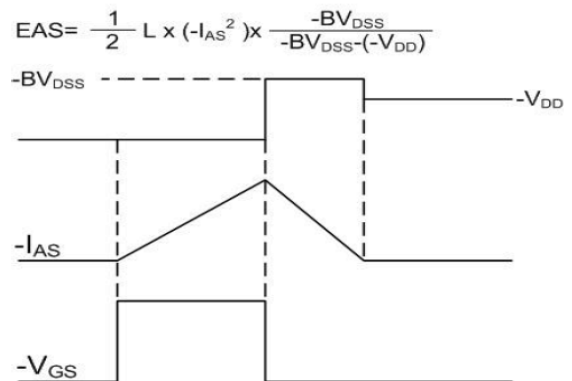


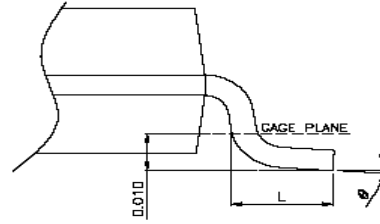
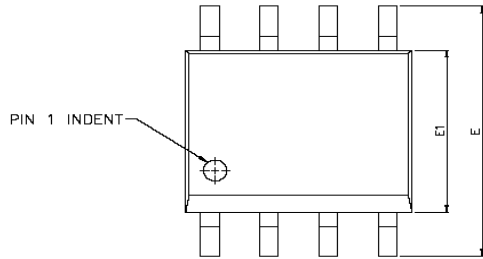
Fig. 11 Unclamped Inductive Waveform



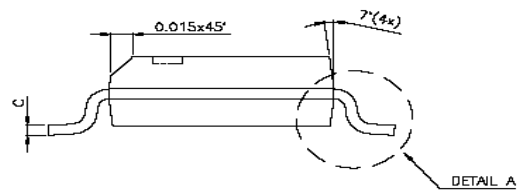
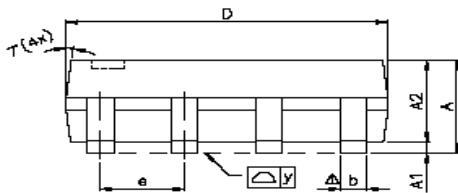
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SOP-8 PACKAGE OUTLINE



DETAIL A



DETAIL A

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	—	0.25	0.004	—	0.010
A2	—	1.45	—	—	0.057	—
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	—	1.27	—	—	0.050	—
L	0.38	0.71	1.27	0.015	0.028	0.050
Δy	—	—	0.076	—	—	0.003
θ	0°	—	8°	0°	—	8°



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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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