



SPN8878

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN8878 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology. The SPN8878 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.

FEATURES

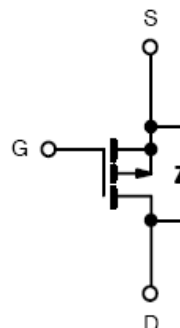
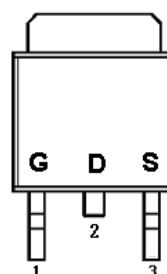
- 30V/20A, $R_{DS(ON)}=12m\Omega@V_{GS}=10V$
- 30V/15A, $R_{DS(ON)}=17m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- TO-252-2L package design

APPLICATIONS

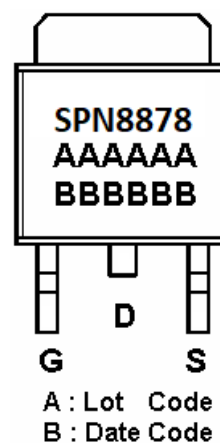
- Power Management in Note book
- Powered System
- DC/DC Converter
- Load Switch

PIN CONFIGURATION

TO-252-2L



PART MARKING





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PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN8878T252RGB	TO-252-2L	SPN8878

※ SPN8878T252RGB : 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	TA=25°C		ID	18	A
	TA=100°C			13	
Pulsed Drain Current			IDM	40	A
Continuous Drain Current			IS	5	A
Power Dissipation	TA=25°C	TO-252-2L	PD	40	W
		TO-251		55	
Operating Junction Temperature			TJ	150	°C
Storage Temperature Range			TSTG	-55/150	°C
Thermal Resistance-Junction to Ambient			RθJA	100	°C/W



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ELECTRICAL CHARACTERISTICS

(T_A=25°C Unless otherwise noted)

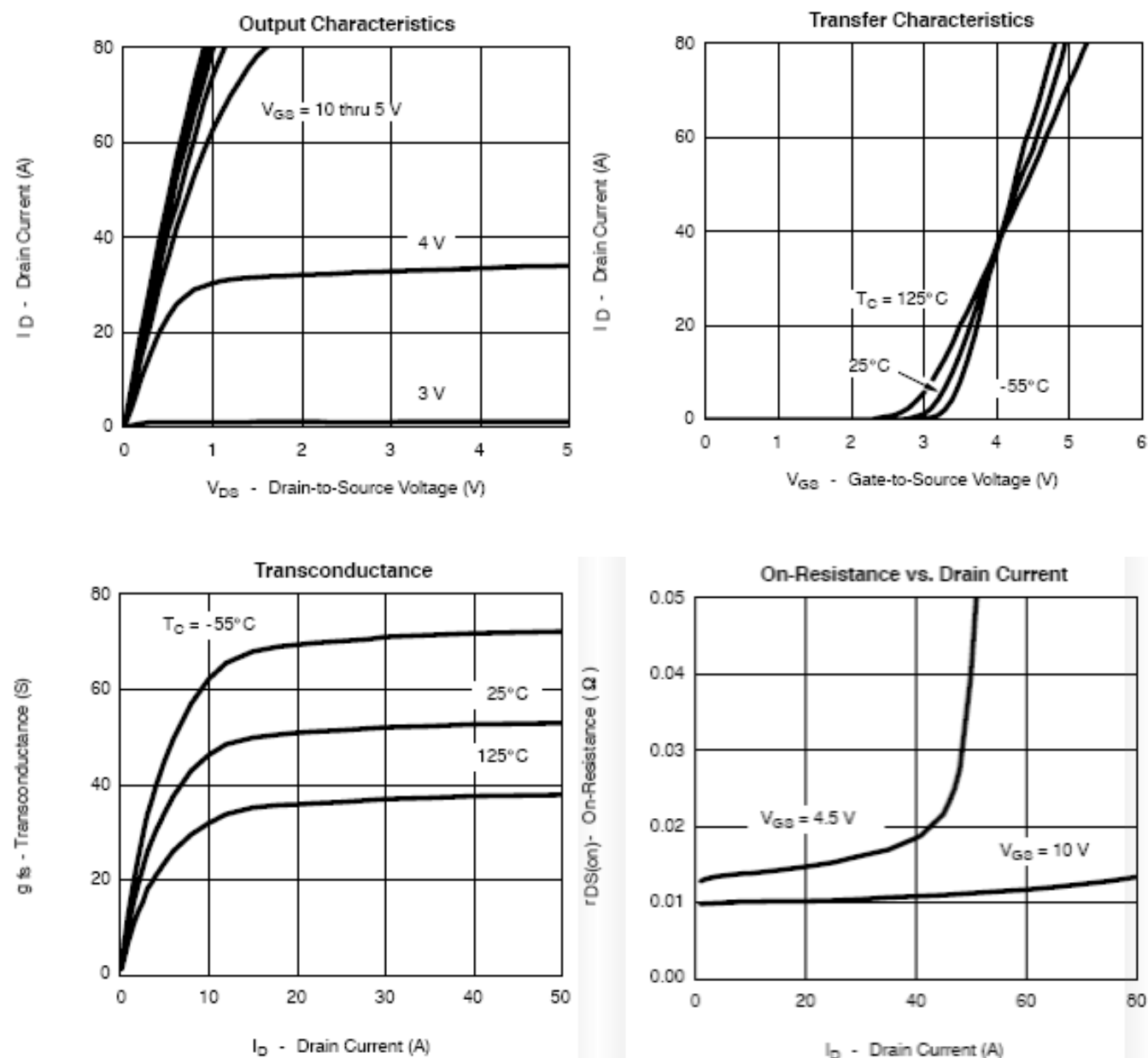
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.0		3.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	uA
		V _{DS} =24V, V _{GS} =0V T _J =85°C			5	
On-State Drain Current	I _{D(on)}	V _{DS} ≥5V, V _{GS} =10V	40			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		0.010	0.012	Ω
		V _{GS} =4.5V, I _D =15A		0.013	0.017	
Forward Transconductance	g _{fs}	V _{DS} =15V, I _D =20A	15			S
Diode Forward Voltage	V _{SD}	I _S =40A, V _{GS} =0V		0.8	1.5	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V I _D =50A		28	42	nC
Gate-Source Charge	Q _{gs}			6		
Gate-Drain Charge	Q _{gd}			5		
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V f=1MHz		1600		pF
Output Capacitance	C _{oss}			285		
Reverse Transfer Capacitance	C _{rss}			140		
Turn-On Time	t _{d(on)}	V _{DD} =15V, R _L =0.3Ω I _D =50A, V _{GEN} =10V R _G =1Ω		9	15	nS
	t _r			15	25	
Turn-Off Time	t _{d(off)}			20	30	
	t _f			12	20	



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TYPICAL CHARACTERISTICS

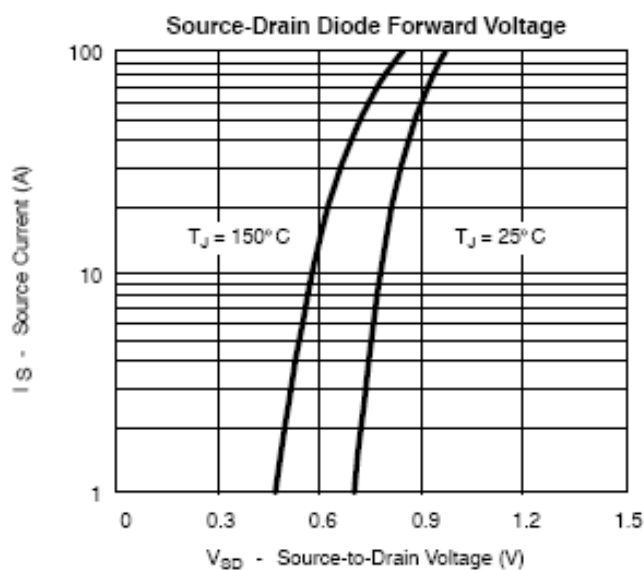
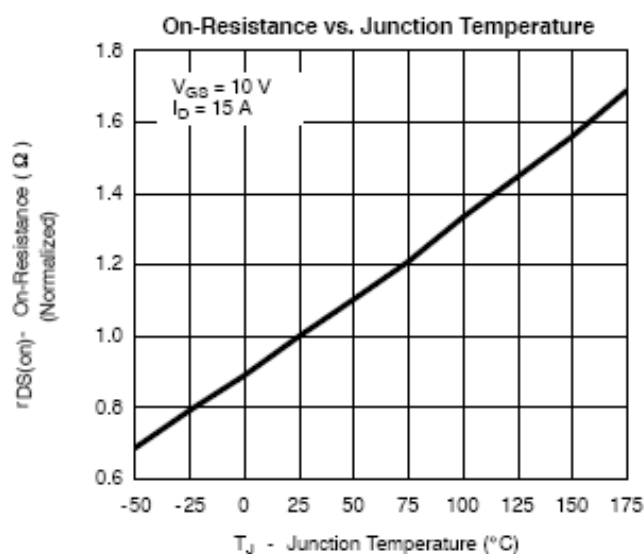
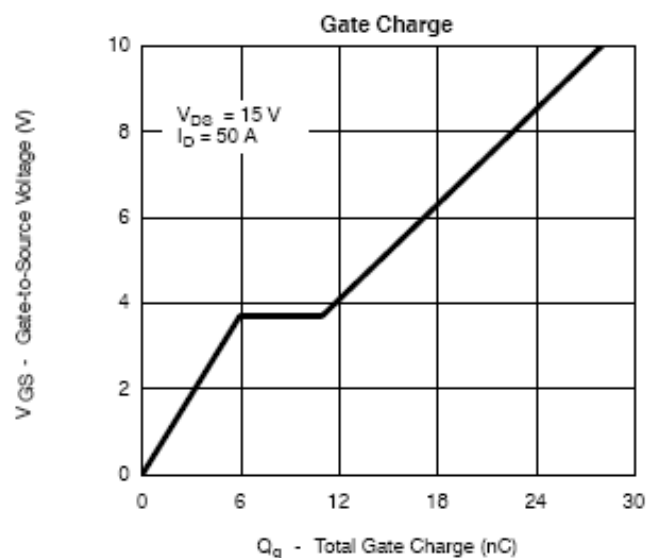
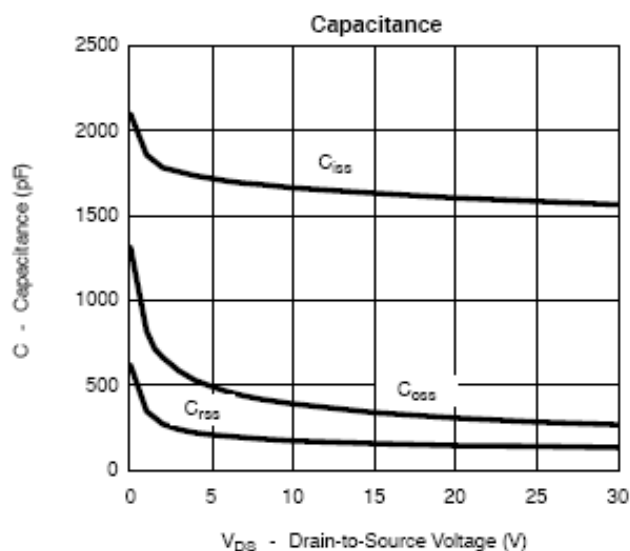




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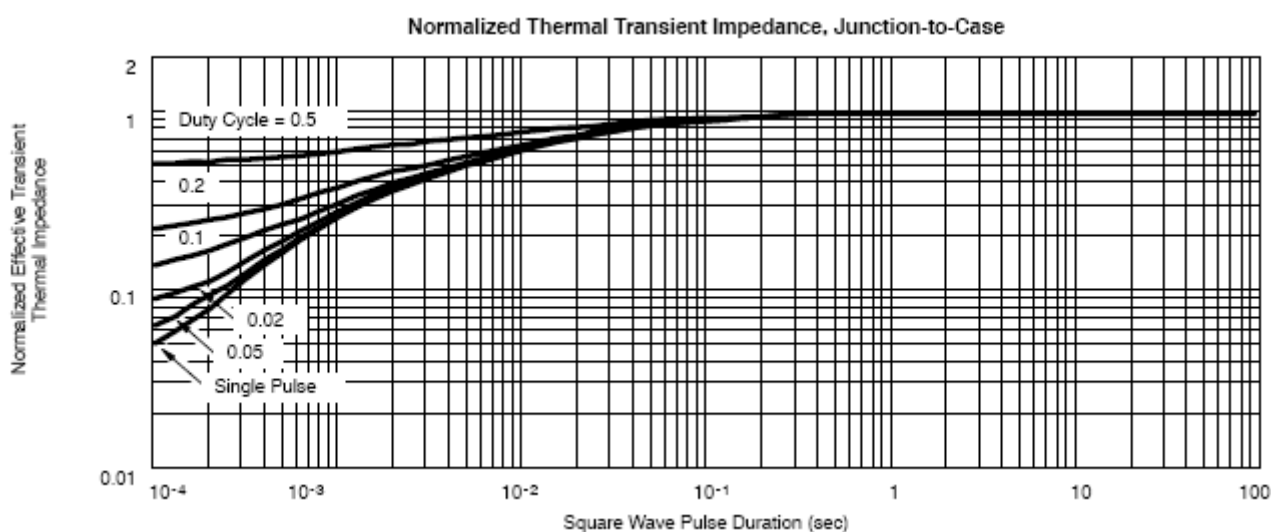
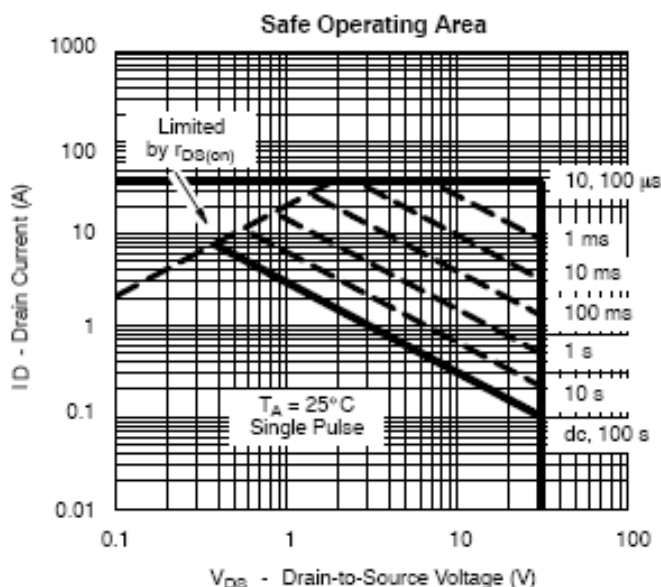
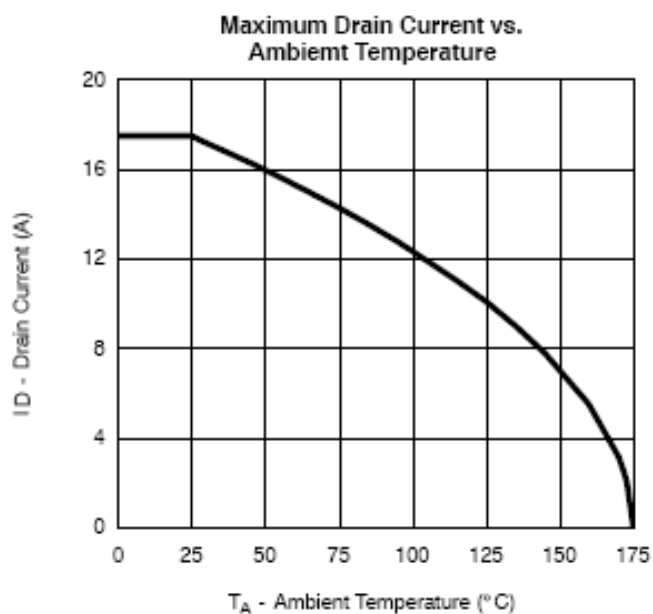




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TYPICAL CHARACTERISTICS





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