



SPN160T15

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN160T15 is the N-Channel enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. The SPN160T15 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.

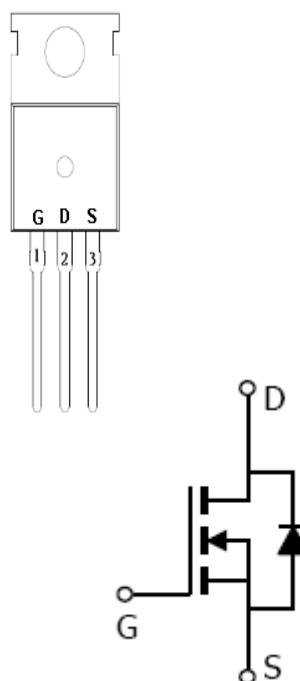
FEATURES

- ◆ 150V/160A, $R_{DS(ON)} = 6m\Omega @ V_{GS} = 10V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- DC/DC Converter
- Load Switch
- SMPS Secondary Side Synchronous Rectifier
- Motor Control
- Power Tool

PIN CONFIGURATION



PART MARKING





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PIN DESCRIPTION

TO-220-3L

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN160T15T220TGB	TO-220-3L	SPN160T15
SPN160T15T220FTGB	TO-220F	SPN160T15

※ SPN160T15T220TGB : Tube ; Pb – Free ; Halogen – Free

※ SPN160T15T220FTGB : Tube ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		VDSS	150	V
Gate –Source Voltage		VGSS	±20	V
Continuous Drain Current (Silicon Limited)	Tc=25°C	ID	160	A
	Tc=100°C		113	
Pulsed Drain Current		IDM	545	A
Single Pulse Avalanche Energy (Tc=25°C , L=0.4mH.)		EAS	720	mJ
Power Dissipation (TO-220-3L)	Tc=25°C	PD	355	W
Operating Junction Temperature		TJ	-55/150	°C
Storage Temperature Range		TSTG	-55/150	°C
Thermal Resistance-Junction to Case (TO-220-3L)		RθJC	0.35	°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	150			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	2.0		4.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =150V, V _{GS} =0V T _J =25°C,			1	uA
		V _{DS} =150V, V _{GS} =0V, T _J =100°C			100	
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		5.4	6	mΩ
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =20A		80		S
Gate resistance	R _g	V _{DS} =0V, V _{GS} =0V f=1MHz		2.7		Ω
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V		0.9	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =75V, V _{GS} =10V I _D =20A		80		nC
Gate-Source Charge	Q _{gs}			28		
Gate-Drain Charge	Q _{gd}			12		
Input Capacitance	C _{iss}	V _{DS} =75V, V _{GS} =0V f=1MHz		6320		pF
Output Capacitance	C _{oss}			462		
Reverse Transfer Capacitance	C _{rss}			7.5		
Turn-On Time	t _{d(on)}	V _{DD} =75V, I _D =20A, V _{GS} =10V R _G =10Ω		27		nS
	t _r			21		
Turn-Off Time	t _{d(off)}			38		
	t _f			14		



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