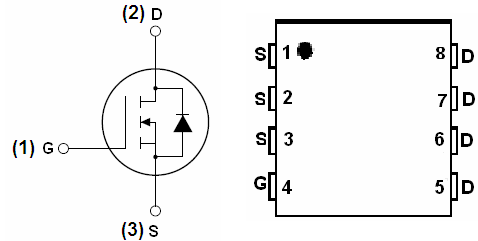


110A N-Channel Enhancement Mode Power MOSFET - 80V
PRIMARY CHARACTERISTICS

BV_{DSS}	$R_{DS(on)MAX}$	I_D
80V	$5.5m\Omega @ V_{GS}=10V$	110A

PR-PAK
PACKAGE

GENERAL DESCRIPTION

- SPR80N110 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of Isolated DC/DC Converters in Telecom and Industrial applications.

MECHANICAL DATA

- Case : Molded plastic, PR-PAK
- Polarity : Shown above
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Epoxy : UL94-V0 rated flame retardant

Absolute Maximum Ratings @ $T_A=25^\circ C$ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	80	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current (Continuous) *AC	$T_A=25^\circ C$	I_D	110	A
	$T_A=100^\circ C$		70	
Drain Current (Pulse) *B		I_{DM}	300	A
Avalanche energy, single pulse ($L=0.5mH, R_g=25\Omega, I_D=24A$)		E_{AS}	144	mJ
Power Dissipation	$T_A=25^\circ C$	P_D	80	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	$^\circ C$



110A N-Channel Enhancement Mode Power MOSFET - 80V

Absolute Maximum Ratings @T_A=25°C unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V _{DSS}	80	V
Gate-Source Voltage		V _{GSS}	±20	V
Drain Current (Continuous) *AC	T _A =25°C	I _D	110	A
	T _A =100°C		70	
Drain Current (Pulse) *B		I _{DM}	300	A
Avalanche energy, single pulse (L=0.5mH, R _g =25Ω, I _D =24A)		E _{AS}	144	mJ
Power Dissipation	T _A =25°C	P _D	80	W
Operating Temperature/ Storage Temperature		T _J /T _{STG}	-55~150	°C

Electrical Characteristics @T_A=25°C unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μ A	80	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 80 V, V _{GS} = 0V	--	--	1	μ A
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _{DS} = 250μ A	2	3	4	V
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	--	--	±100	nA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 30A	--	4.5	5.5	mΩ
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 20A	40	--	--	S
Diode Forward Voltage	V _{SD}	I _{SD} = 30A , V _{GS} =0V	--	--	1.2	V
Diode Forward Current	I _S		--	--	110	A
Switching						
Total Gate Charge	Q _g	V _{DS} =40V,I _D =20A, V _{GS} =10V	--	48	--	nC
Gate-Source Charge	Q _{gs}		--	18.8	--	nC
Gate-Drain Charge	Q _{gd}		--	12.3	--	nC
Turn-on Delay Time	t _{d (on)}	V _{DD} =40V,I _D =2A, V _{GS} =10V,R _{GEN} =2.5Ω	--	18	--	ns
Turn-on Rise Time	t _r		--	35	--	ns
Turn-off Delay Time	t _{d(off)}		--	46	--	ns
Turn-Off Fall Time	t _f		--	13	--	ns
Dynamic						
Input Capacitance	C _{iss}	V _{DS} =40V,V _{GS} =0V, f=1.0MHz	--	2800	--	pF
Output Capacitance	C _{oss}		--	1162	--	pF
Reverse Transfer Capacitance	C _{rss}		--	48	--	pF

A: The value of R_{DS(on)} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the t_s ≤ 10s junction to ambient thermal resistance rating.



Typical Performance Characteristics

Figure 1. Typ. Output Characteristics ($T_J=25^{\circ}\text{C}$)

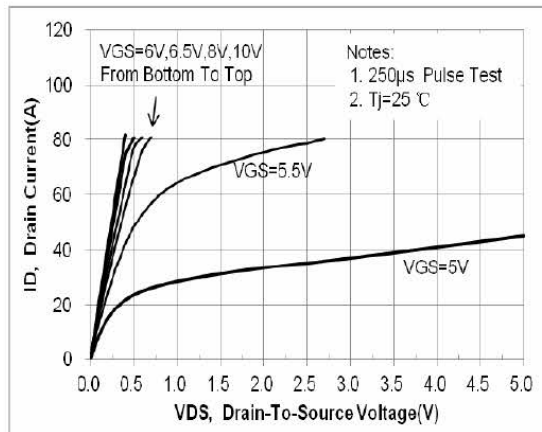


Figure 2. Transfer Characteristics (Junction Temperature)

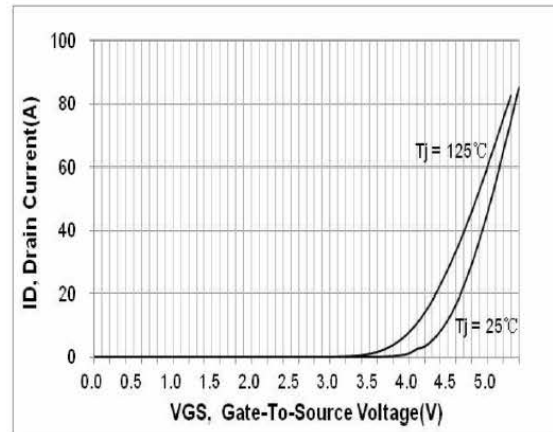


Figure 3. On-Resistance vs. Drain Current and Gate Voltage Figure

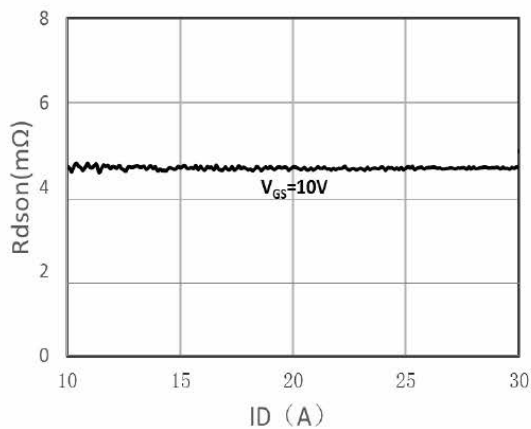


Figure 4. On-Resistance vs. Junction Temperature

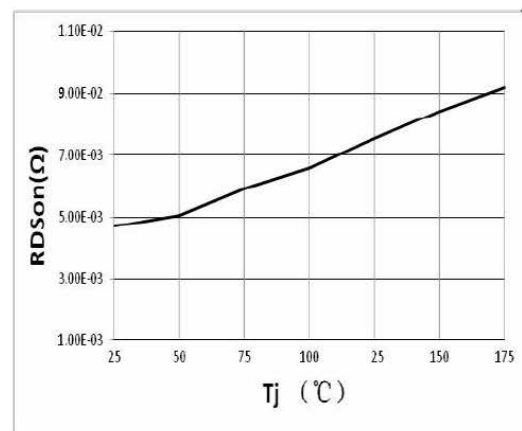


Figure 5. On-Resistance vs. Gate-Source Voltage (Junction Temperature)

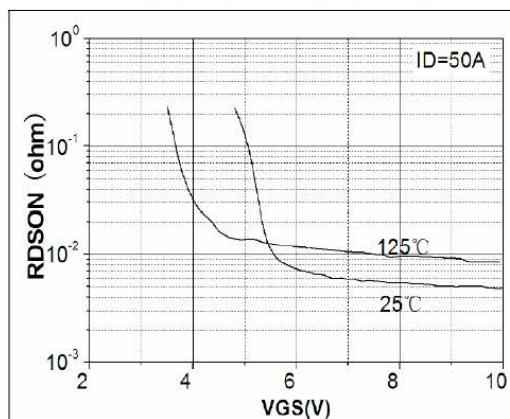


Figure 6. Body-Diode Characteristics (Junction Temperature)

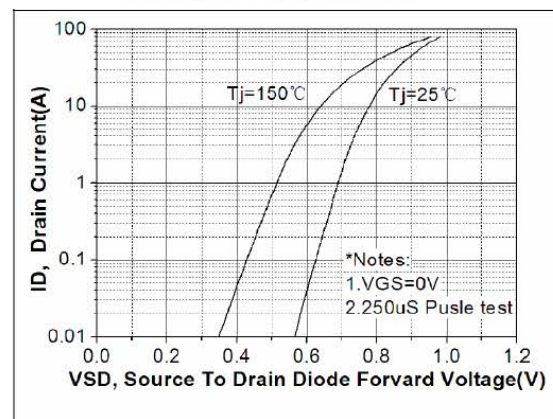


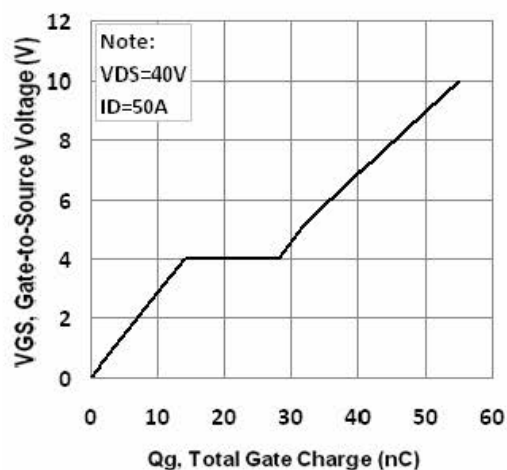
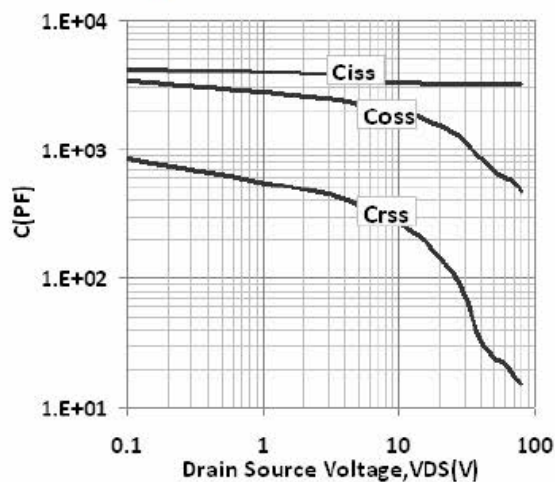
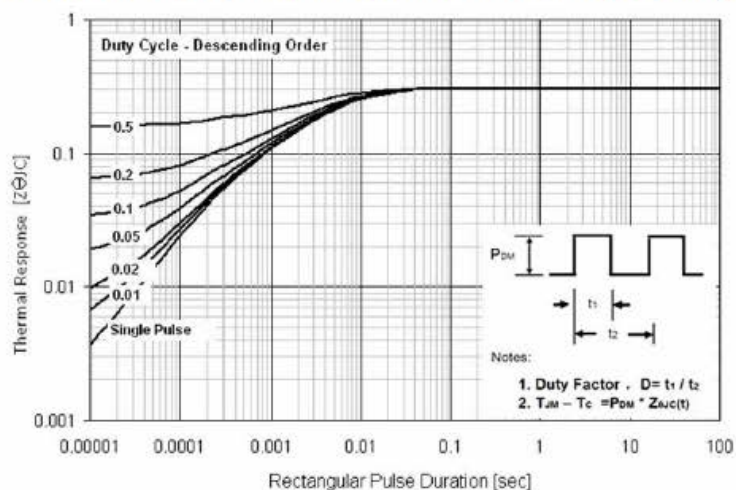
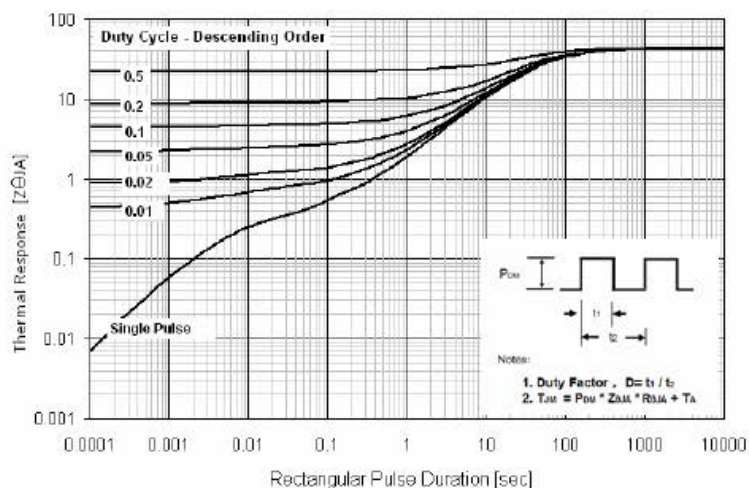
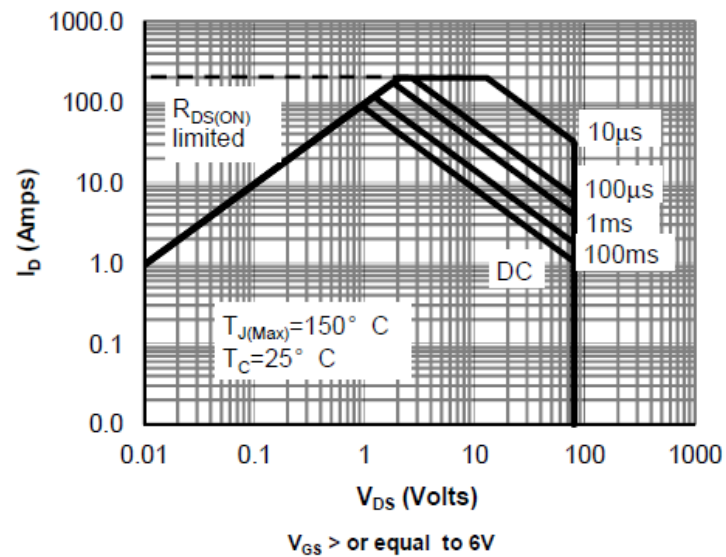
Figure 7. Gate-Charge Characteristics

Figure 8. Capacitance Characteristics

Figure 9: Normalized Maximum Transient Thermal Impedance (R_{thJC})

Figure 10: Normalized Maximum Transient Thermal Impedance (R_{thJA})


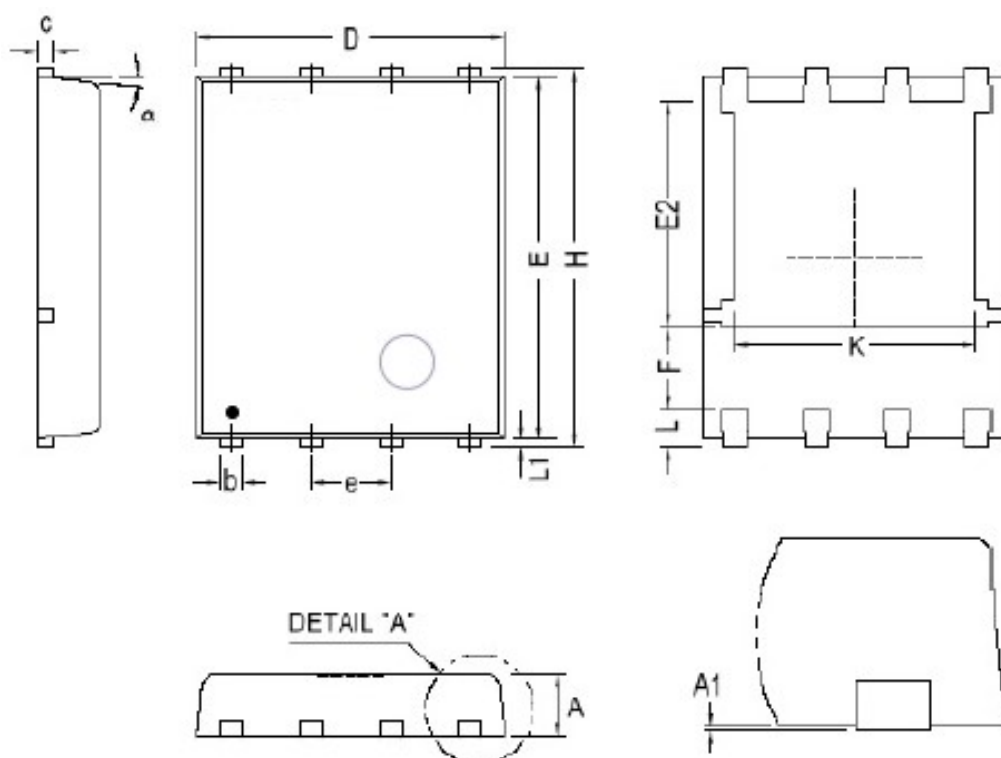
Figure 11: Maximum Forward Biased Safe Operation Area





Outline Drawing

PR-PAK



REF.	Millimeter			REF.	Millimeter		
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	0.80	1.00	1.17	E	5.70	-	5.90
A1	0.00	-	0.10	e	-	1.27	-
b	0.30	-	0.51	H	5.90	-	6.20
c	0.20	-	0.34	L	-	0.60	-
D	4.80	-	5.10	L1	0.06	-	0.25
F	1.10REF.			α	0°	-	12°
E2	3.50REF.			K	3.70	3.90	4.10

Rev.D

Ordering Information:

Device PN	Packing
SPR80N110 -T ⁽¹⁾ H ⁽²⁾ -WS	Tape&Reel: 5 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Haloge free product for packing code suffix "H"

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