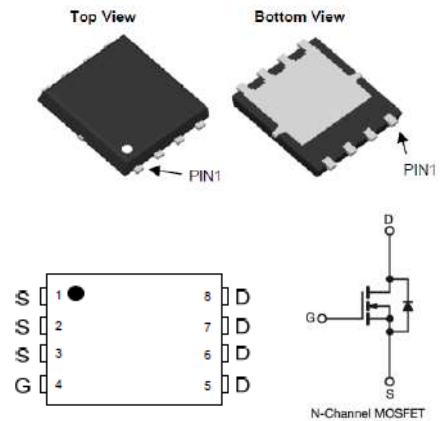


PRIMARY CHARACTERISTICS

BV _{DSS}	R _{DS(on)} MAX	I _D
100V	5.5mΩ@V _{GS} =10V	83A
	8.7mΩ@V _{GS} =4.5V	

SCHEMATIC DIAGRAM

PR-PAK PACKAGE



GENERAL DESCRIPTION

- Notebook AC-in load Switch
- Battery protection charge/discharge

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°C unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current (Continuous) *AC	$T_C=25^{\circ}C$	I_D	83	A
	$T_C=70^{\circ}C$		66.1	
Drain Current (Pulse) *B		I_{DM}	200	A
Power Dissipation	$T_C=25^{\circ}C$	P_D	83	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	$^{\circ}C$

Thermal Resistance Ratings

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient	$t \leq 10 \text{ s}$	R_{thJA}	18	23	$^{\circ}\text{C/W}$
Maximum Junction-to-Case (Drain)	Steady State	R_{thJC}	1	1.5	



Electrical Characteristics @T_A=25°C unless otherwise noted

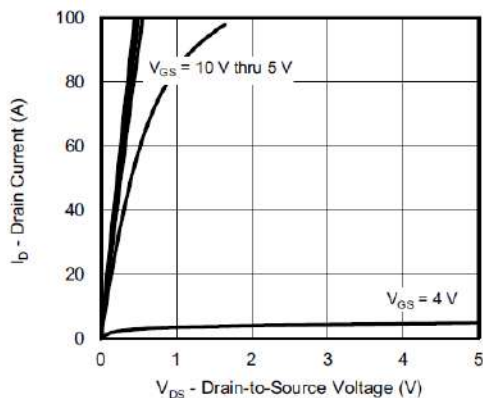
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100 V, V _{GS} = 0V	--	--	1	μA
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _{DS} = 250μA	1	2.1	3	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 = 20A	--	4.3	5.5	mΩ
	R _{DS(on)}	V _{GS} = 6.0V, I _D = 20A	--	5.2	6.7	mΩ
	R _{DS(on)}	V _{GS} = 4.5V, I _D = 20A	--	6.8	8.7	mΩ
Diode Forward Voltage	V _{SD}	I _{SD} = 1A , V _{GS} =0V	--	0.69	1.2	V
Diode Forward Current *AC	I _S	T _C =25°C	--	--	83	A
Switching						
Total Gate Charge	Q _g	V _{DS} =50V , V _{GS} =10V , I _D =20A	--	59	--	nC
Gate-Source Charge	Q _{gs}		--	10	--	nC
Gate-Drain Charge	Q _{gd}		--	13.5	--	nC
Turn-on Delay Time	t _{d (on)}	V _{DS} = 50V, V _{GEN} = 10V, R _G = 4.5Ω, R _L = 2.5Ω, I _{DS} = 20A	--	13.2	--	ns
Turn-on Rise Time	t _r		--	40	--	ns
Turn-off Delay Time	t _{d(off)}		--	38	--	ns
Turn-Off Fall Time	t _f		--	66	--	ns
Dynamic						
Input Capacitance	C _{iss}	V _{GS} =25V, V _{DS} = 10V, f=1MHz	--	3460	--	pF
Output Capacitance	C _{oss}		--	1940	--	pF
Reverse Transfer Capacitance	C _{rss}		--	194	--	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.

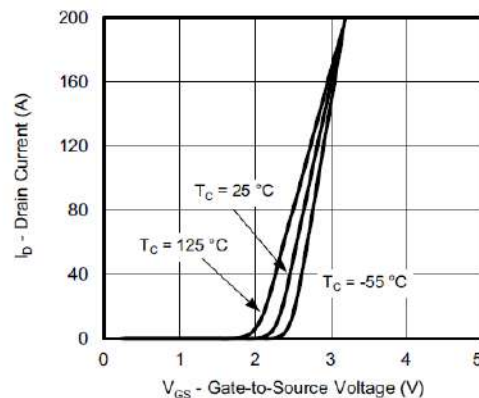
B: Repetitive rating, pulse width limited by junction temperature.

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

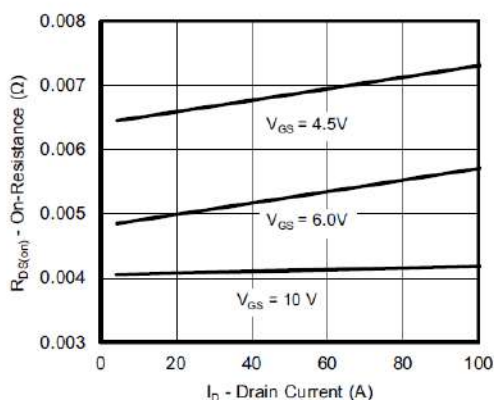
Typical Performance Characteristics (TJ = 25 °C, unless otherwise noted)



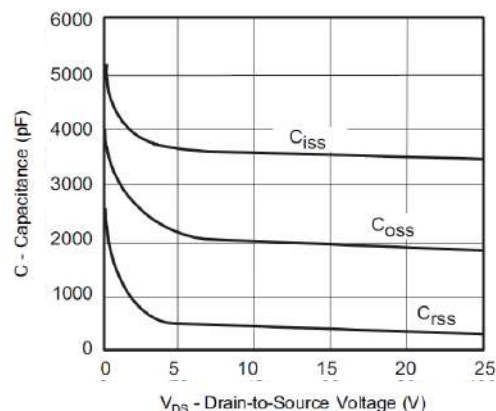
Output Characteristics



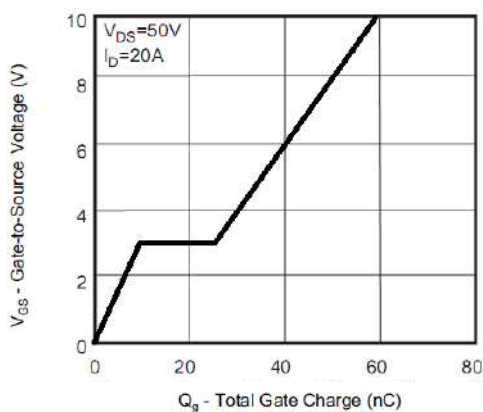
Transfer Characteristics



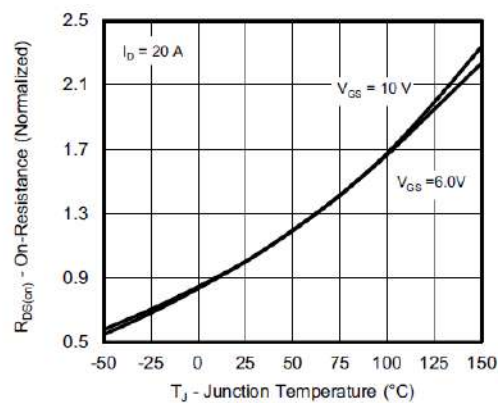
On-Resistance vs. Drain Current and Gate Voltage



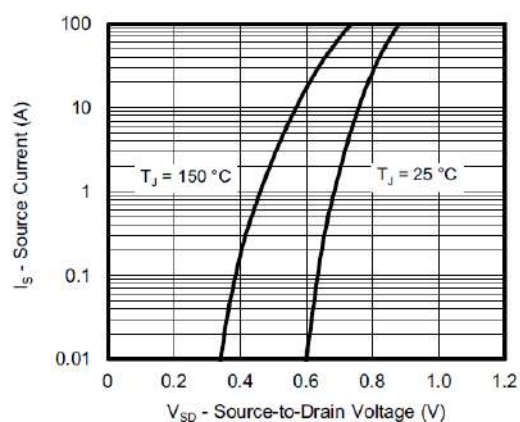
Capacitance



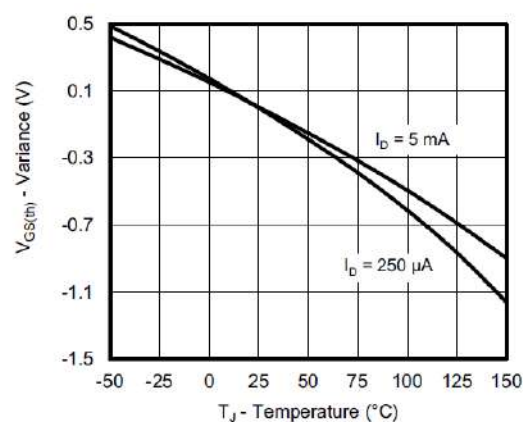
Gate Charge



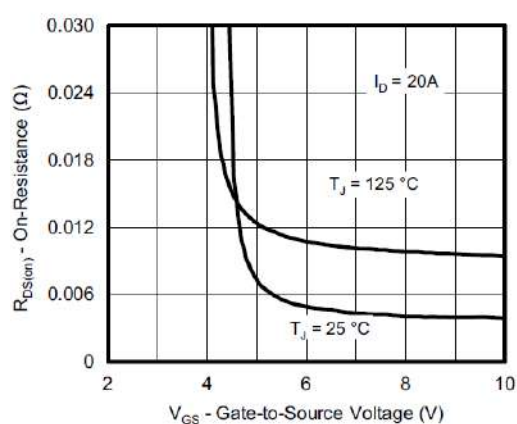
On-Resistance vs. Junction Temperature



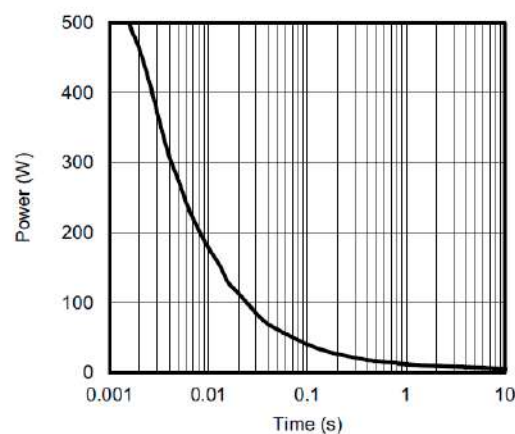
Source-Drain Diode Forward Voltage



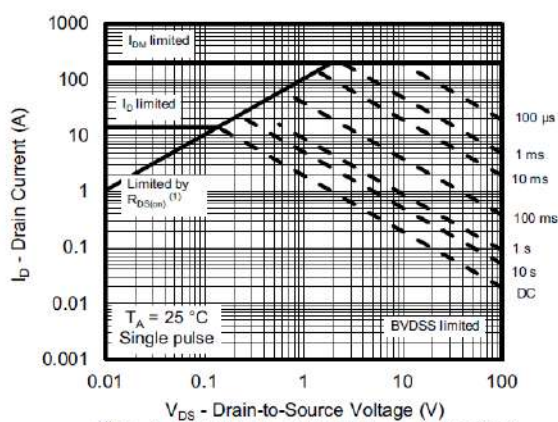
Threshold Voltage



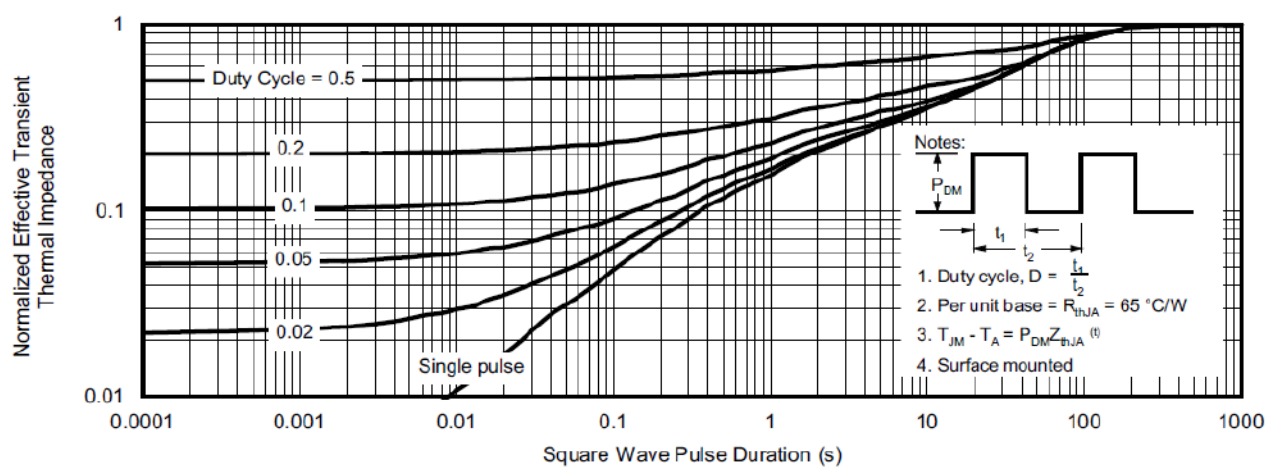
On-Resistance vs. Gate-to-Source Voltage



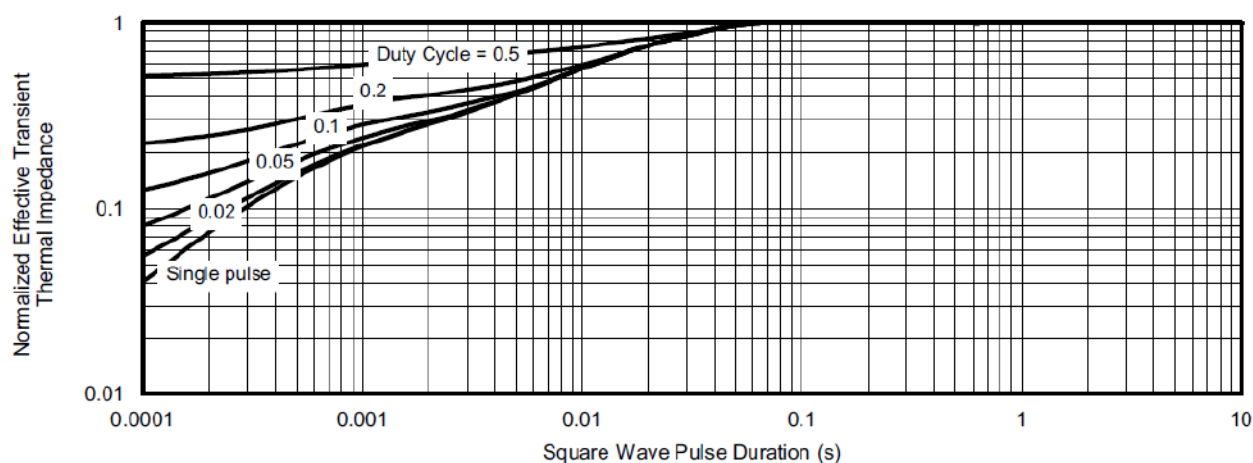
Single Pulse Power, Junction-to-Ambient



Safe Operating Area, Junction-to-Ambient

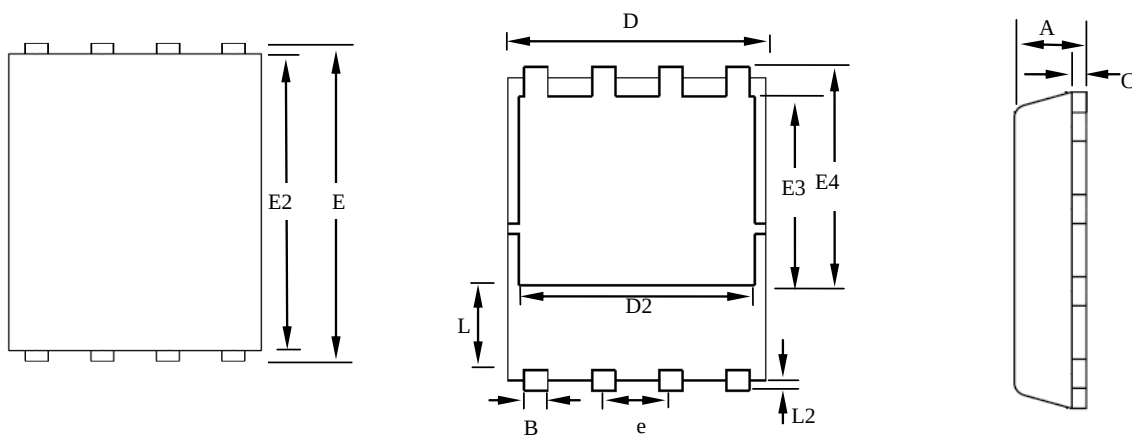


Normalized Thermal Transient Impedance, Junction-to-Ambient



Outline Drawing

PR-PAK



SYMBOLS	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	--	1.20	0.031	--	0.047
B	0.30	--	0.51	0.012	--	0.020
C	0.15	--	0.35	0.006	--	0.014
D	4.80	--	5.30	0.189	--	0.209
D2	3.61	--	4.35	0.142	--	0.171
E	5.90	--	6.35	0.232	--	0.250
E2	5.42	--	5.90	0.213	--	0.232
E3	3.23	--	3.90	0.127	--	0.154
E4	3.69	--	4.55	0.145		0.179
L	0.61	--	1.80	0.024	--	0.071
L2	0.05	--	0.36	0.002	--	0.014
e	--	1.27	--	--	0.050	--

Rev.A

Ordering Information:

Device PN	Packing
SPR100N83 -T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	Tape&Reel: 5 Kpcs/Reel

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

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

(3) WS : Willas brand abbreviation, Label Type does not display

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