

NVMFS6H858N

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	80			V
Drain-to-Source Breakdown Voltage Temperature Coefficient	V _{(BR)DSS} /T _J			44		mV/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} = 0 V, V _{DS} = 80 V	T _J = 25 °C		10	μA
			T _J = 125°C		250	
Gate-to-Source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = 20 V			100	nA

ON CHARACTERISTICS (Note 4)

Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 30 μA	2.0		4.0	V
Threshold Temperature Coefficient	V _{GS(TH)} /T _J			-7.5		mV/°C
Drain-to-Source On Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 5 A		16.9	20.7	mΩ
Forward Transconductance	g _{FS}	V _{DS} = 15 V, I _D = 10 A		36		S

CHARGES, CAPACITANCES & GATE RESISTANCE

Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1 MHz, V _{DS} = 40 V		510		pF
Output Capacitance	C _{OSS}			80		
Reverse Transfer Capacitance	C _{RSS}			4.7		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 10 V, V _{DS} = 40 V; I _D = 10 A		8.9		nC
Threshold Gate Charge	Q _{G(TH)}	V _{GS} = 10 V, V _{DS} = 40 V; I _D = 10 A		2.2		
Gate-to-Source Charge	Q _{GS}			2.8		
Gate-to-Drain Charge	Q _{GD}			1.7		
Plateau Voltage	V _{GP}			4.8		V

SWITCHING CHARACTERISTICS (Note 5)

Turn-On Delay Time	t _{d(ON)}	V _{GS} = 10 V, V _{DS} = 64 V, I _D = 10 A, R _G = 2.5 Ω		8.0		ns
Rise Time	t _r			17		
Turn-Off Delay Time	t _{d(OFF)}			19		
Fall Time	t _f			13		

DRAIN-SOURCE DIODE CHARACTERISTICS

Forward Diode Voltage	V _{SD}	V _{GS} = 0 V, I _S = 5 A	T _J = 25°C		0.8	1.2	V
			T _J = 125°C		0.7		
Reverse Recovery Time	t _{RR}	V _{GS} = 0 V, dI _S /dt = 100 A/μs, I _S = 10 A		29		ns	
Charge Time	t _a			19			
Discharge Time	t _b			9.0			
Reverse Recovery Charge	Q _{RR}			23			nC

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

4. Pulse Test: pulse width ≤ 300 μs, duty cycle ≤ 2%.

5. Switching characteristics are independent of operating junction temperatures.

NVMFS6H858N

TYPICAL CHARACTERISTICS

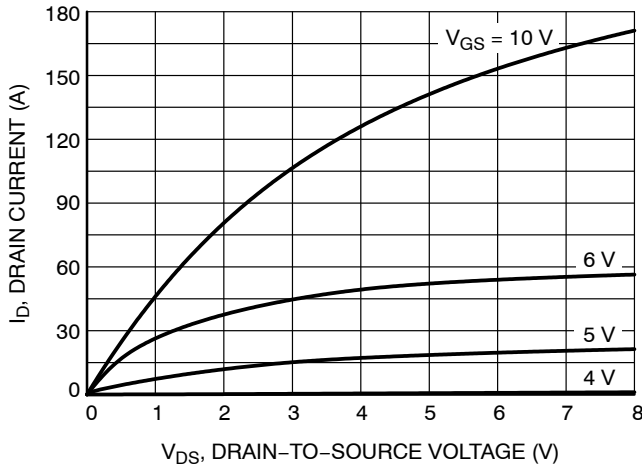


Figure 1. On-Region Characteristics

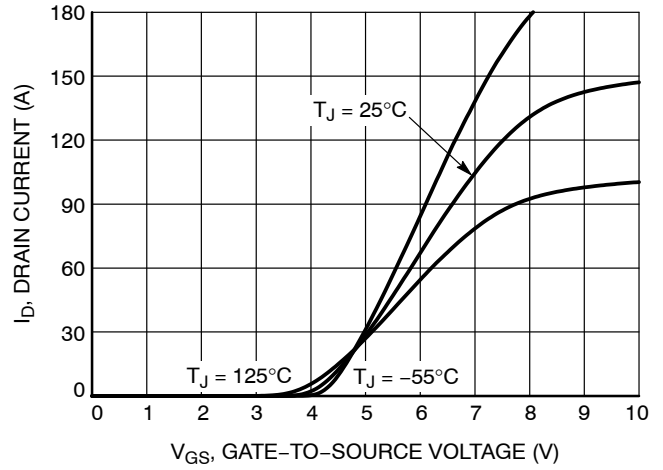


Figure 2. Transfer Characteristics

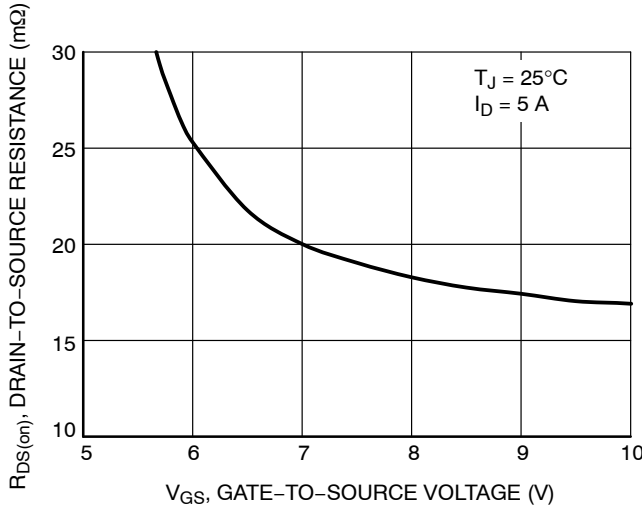


Figure 3. On-Resistance vs. Gate-to-Source Voltage

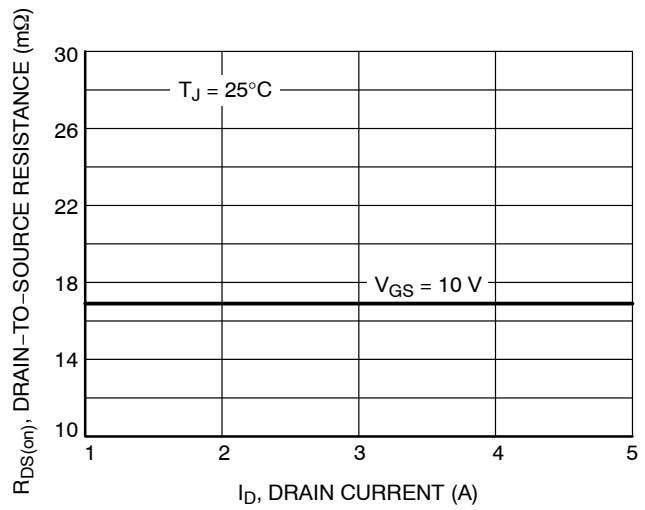


Figure 4. On-Resistance vs. Drain Current and Gate Voltage

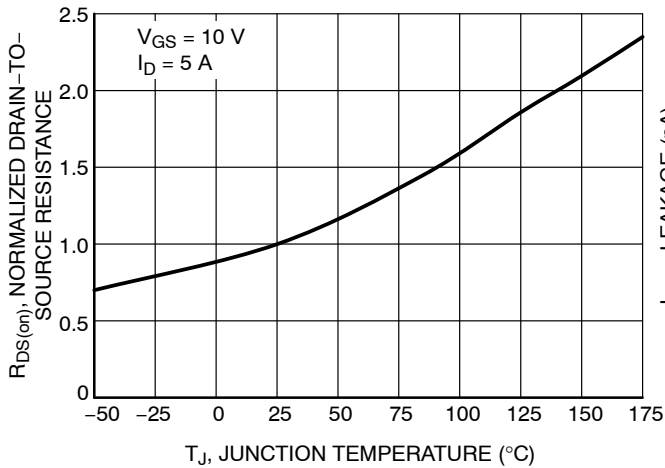


Figure 5. On-Resistance Variation with Temperature

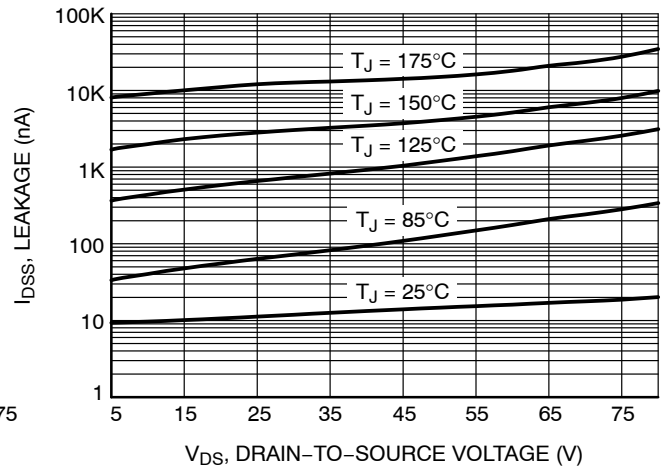


Figure 6. Drain-to-Source Leakage Current vs. Voltage

TYPICAL CHARACTERISTICS

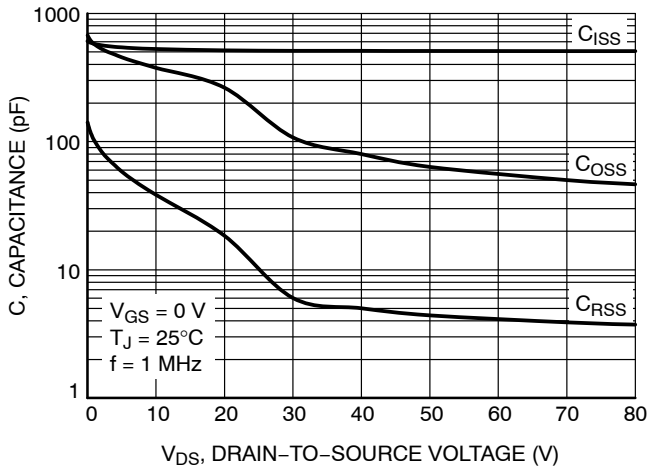


Figure 7. Capacitance Variation

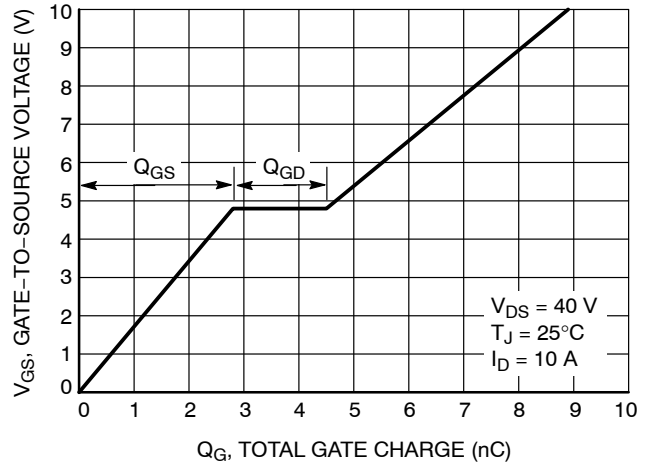


Figure 8. Gate-to-Source Voltage vs. Total Charge

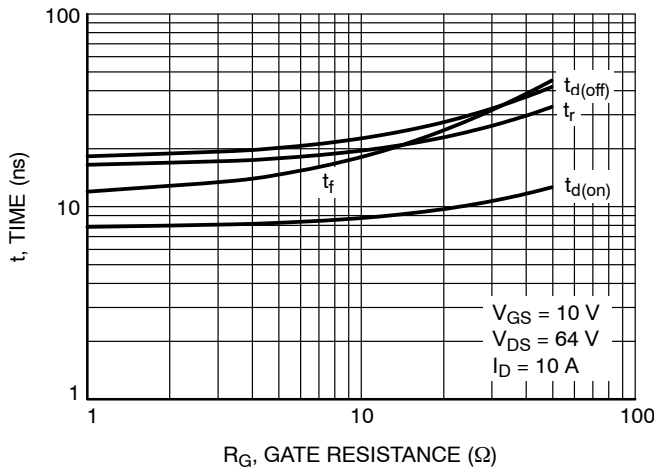


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

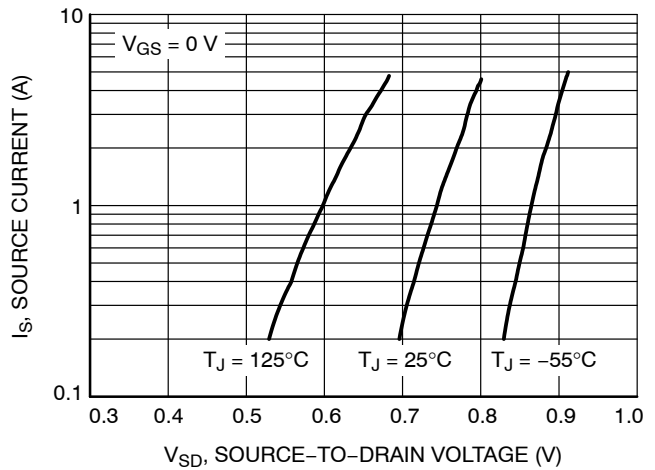


Figure 10. Diode Forward Voltage vs. Current

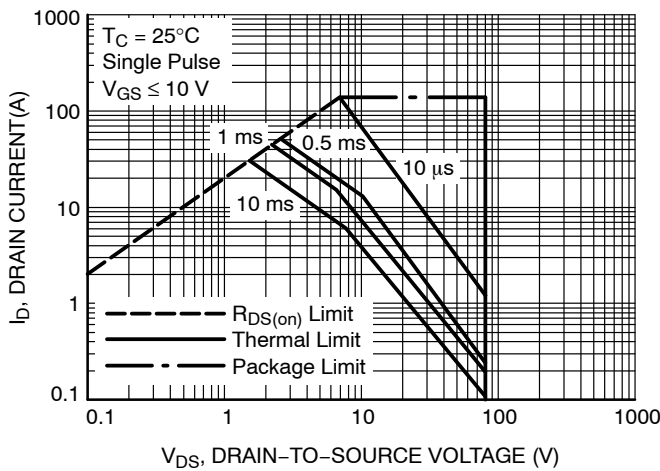


Figure 11. Maximum Rated Forward Biased Safe Operating Area

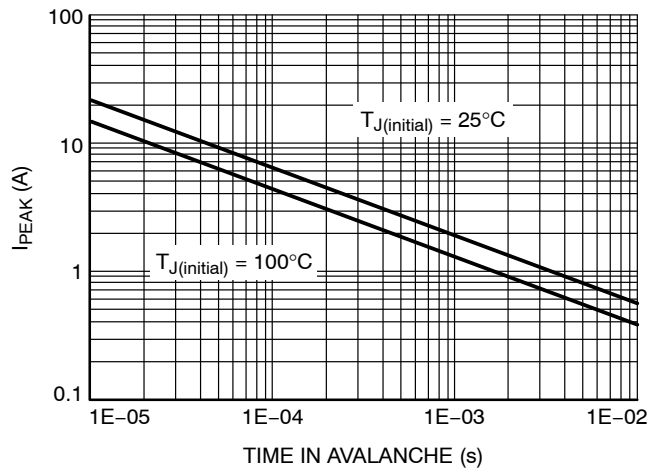


Figure 12. I_{PEAK} vs. Time in Avalanche

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TYPICAL CHARACTERISTICS

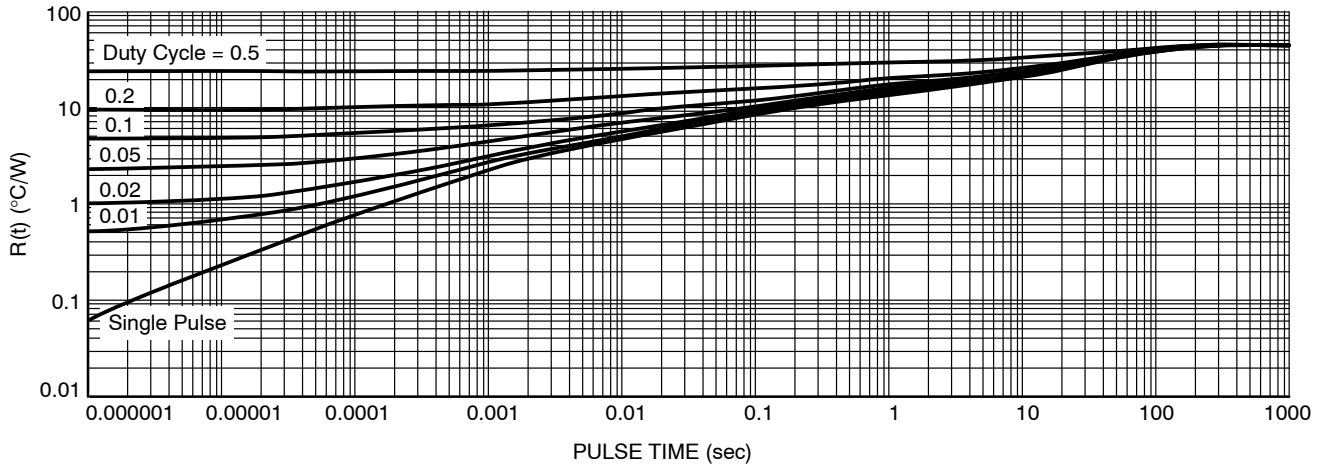


Figure 13. Thermal Characteristics

DEVICE ORDERING INFORMATION

Device	Marking	Package	Shipping†
NVMFS6H858NT1G	6H858N	DFN5 (Pb-Free)	1500 / Tape & Reel
NVMFS6H858NWFT1G	858NWF	DFN5 (Pb-Free, Wettable Flanks)	1500 / Tape & Reel

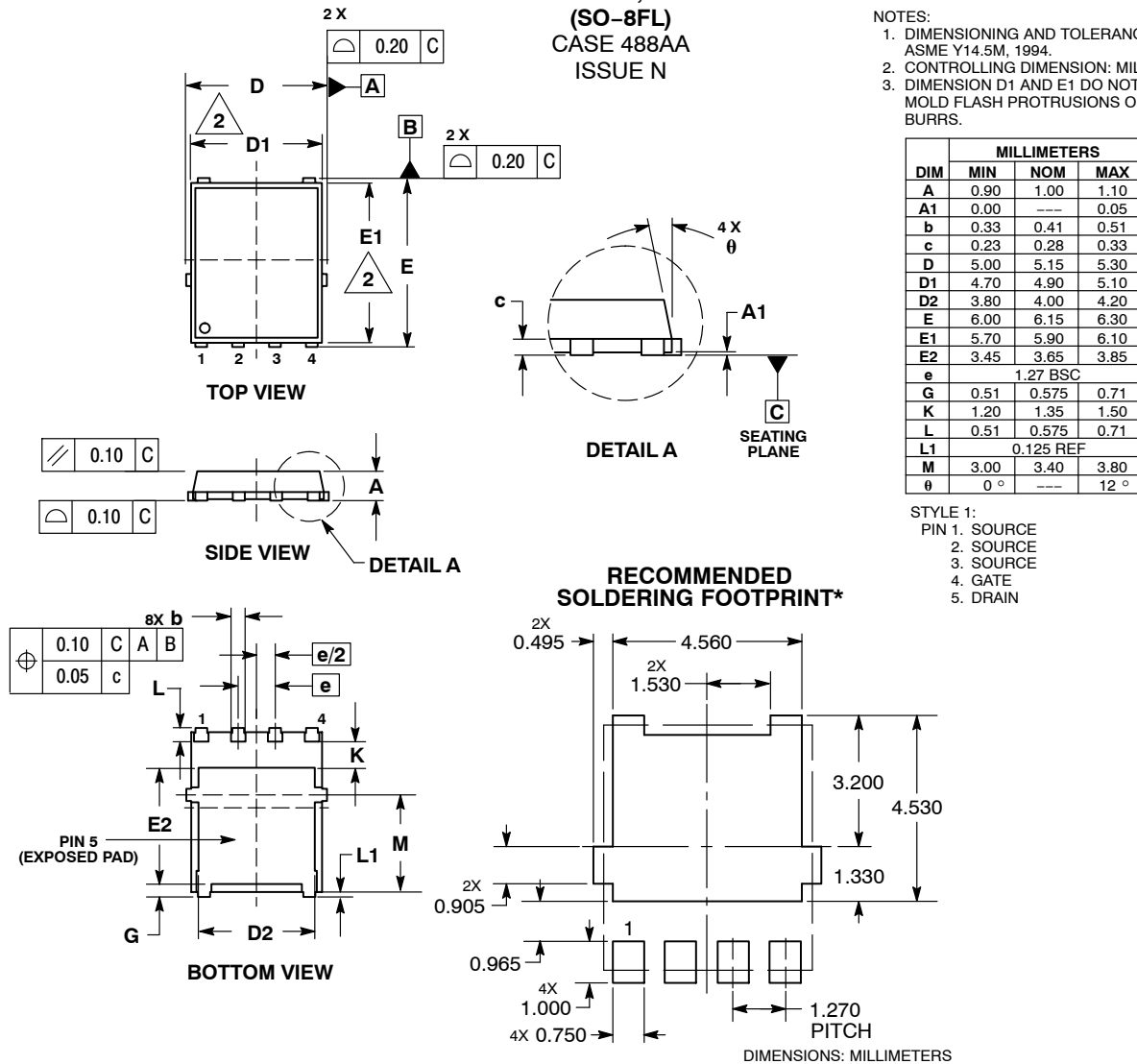
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

NVMFS6H858N

PACKAGE DIMENSIONS

DFN5 5x6, 1.27P
(SO-8FL)
CASE 488AA
ISSUE N

- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETER.
 3. DIMENSION D1 AND E1 DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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