

NVMFS5C468NL

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	40			V
Drain-to-Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$			24		mV/°C
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS} = 0\text{ V}, V_{DS} = 40\text{ V}$	$T_J = 25\ ^\circ\text{C}$		10	μA
			$T_J = 125^\circ\text{C}$		250	
Gate-to-Source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = 20\text{ V}$			100	nA

ON CHARACTERISTICS (Note 4)

Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 20\ \mu\text{A}$	1.2		2.0	V
Threshold Temperature Coefficient	$V_{GS(TH)}/T_J$			-4.8		mV/°C
Drain-to-Source On Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 20\text{ A}$		8.6	10.3	m Ω
		$V_{GS} = 4.5\text{ V}, I_D = 20\text{ A}$		14.5	17.6	
Forward Transconductance	g_{FS}	$V_{DS} = 15\text{ V}, I_D = 20\text{ A}$		33		S

CHARGES, CAPACITANCES & GATE RESISTANCE

Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, f = 1\text{ MHz}, V_{DS} = 25\text{ V}$		570		pF
Output Capacitance	C_{OSS}			230		
Reverse Transfer Capacitance	C_{RSS}			11		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 10\text{ V}, V_{DS} = 20\text{ V}; I_D = 20\text{ A}$		7.3		nC
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 4.5\text{ V}, V_{DS} = 20\text{ V}; I_D = 20\text{ A}$		3.4		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.9		nC
Gate-to-Source Charge	Q_{GS}			1.6		
Gate-to-Drain Charge	Q_{GD}			1.0		
Plateau Voltage	V_{GP}			3.4		V

SWITCHING CHARACTERISTICS (Note 5)

Turn-On Delay Time	$t_{d(ON)}$	$V_{GS} = 4.5\text{ V}, V_{DS} = 20\text{ V}, I_D = 20\text{ A}, R_G = 1\ \Omega$		7		ns
Rise Time	t_r			43		
Turn-Off Delay Time	$t_{d(OFF)}$			11		
Fall Time	t_f			2		

DRAIN-SOURCE DIODE CHARACTERISTICS

Forward Diode Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 20\text{ A}$	$T_J = 25^\circ\text{C}$		0.88	1.2	V
			$T_J = 125^\circ\text{C}$		0.79		
Reverse Recovery Time	t_{RR}	$V_{GS} = 0\text{ V}, di_S/dt = 100\text{ A}/\mu\text{s}, I_S = 20\text{ A}$		18		ns	
Charge Time	t_a			9			
Discharge Time	t_b			9			
Reverse Recovery Charge	Q_{RR}			6.0			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 $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

5. Switching characteristics are independent of operating junction temperatures.

TYPICAL CHARACTERISTICS

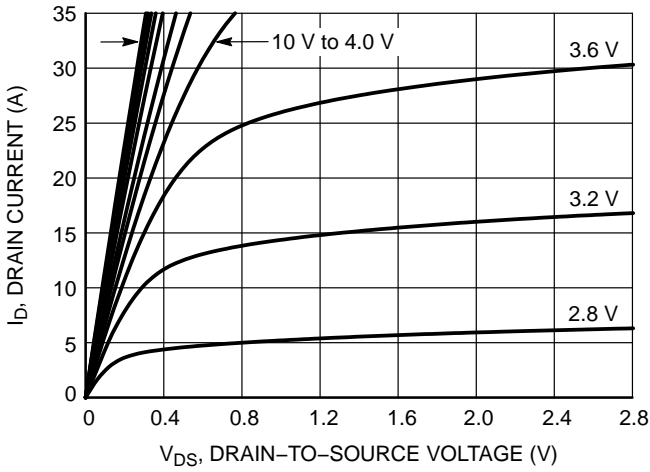


Figure 1. On-Region Characteristics

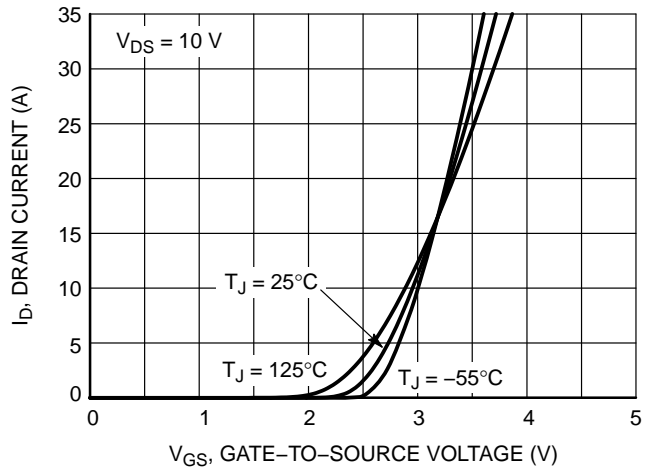


Figure 2. Transfer Characteristics

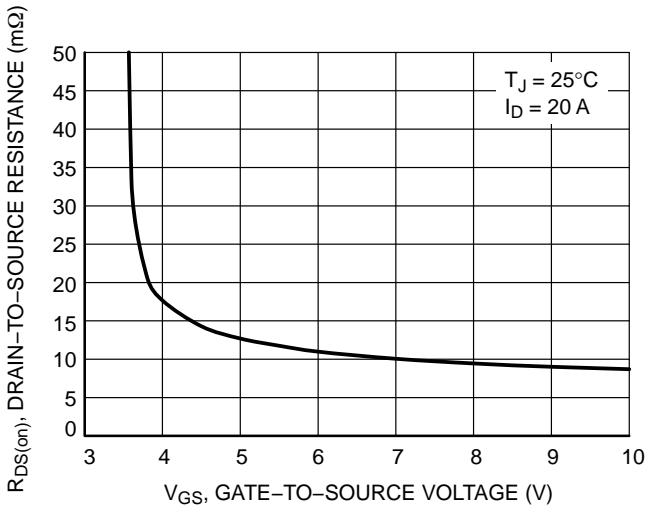


Figure 3. On-Resistance vs. Gate-to-Source Voltage

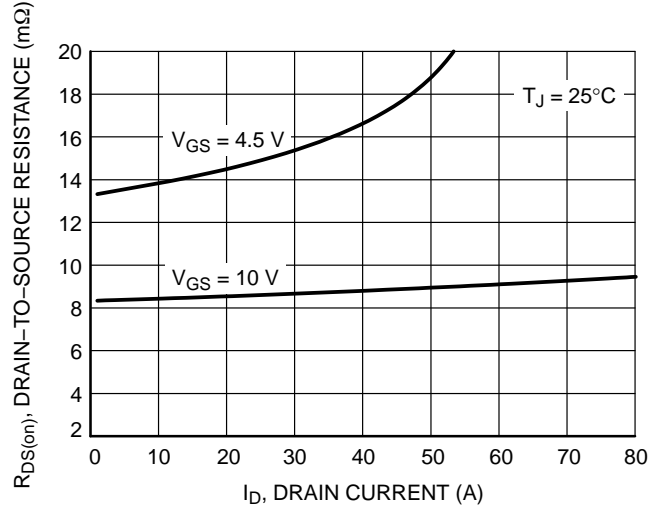


Figure 4. On-Resistance vs. Drain Current and Gate Voltage

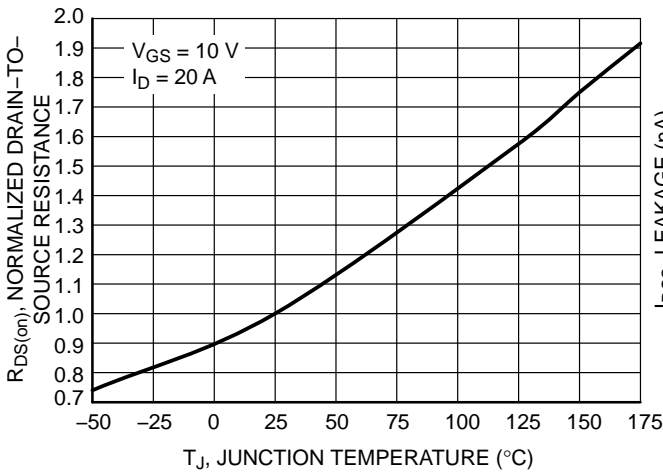


Figure 5. On-Resistance Variation with Temperature

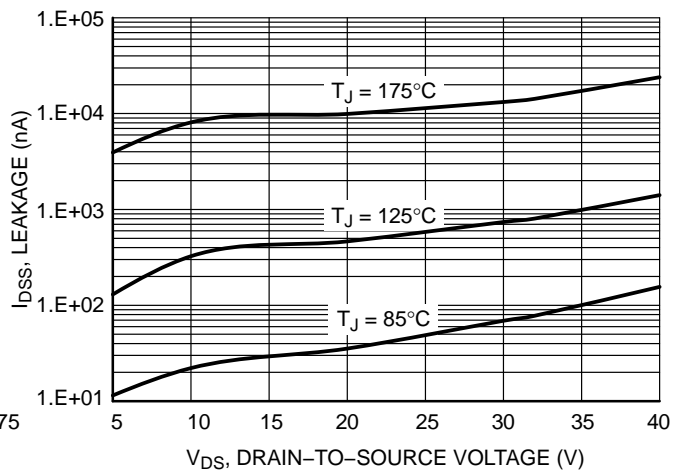


Figure 6. Drain-to-Source Leakage Current vs. Voltage

TYPICAL CHARACTERISTICS

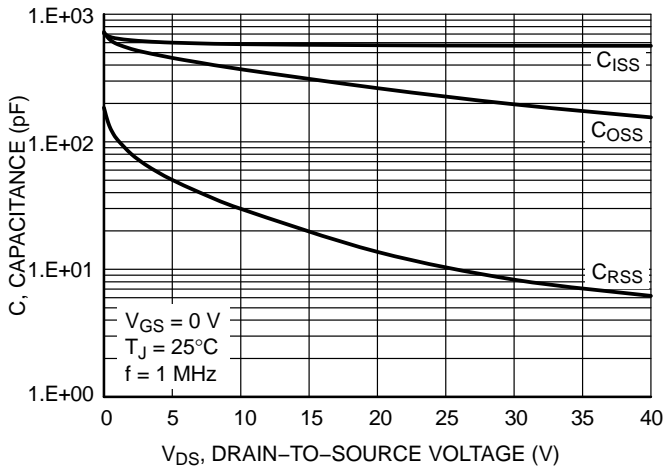


Figure 7. Capacitance Variation

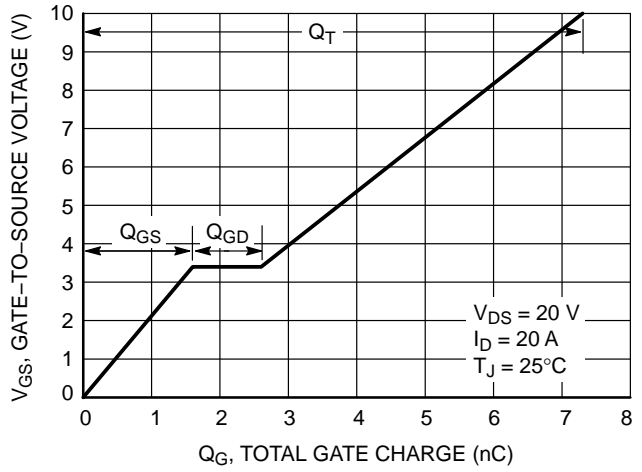


Figure 8. Gate-to-Source vs. Total Charge

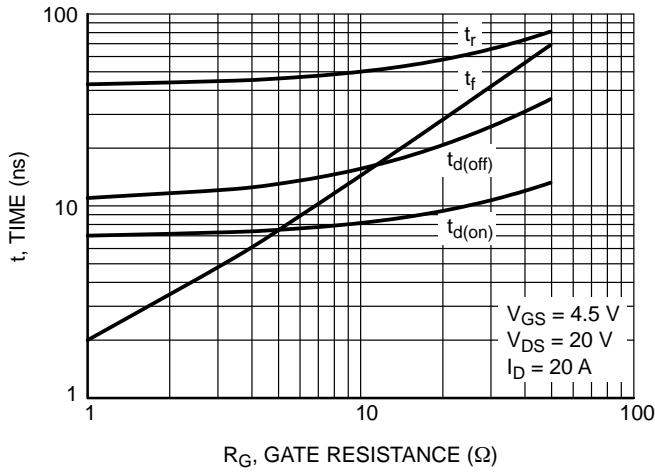


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

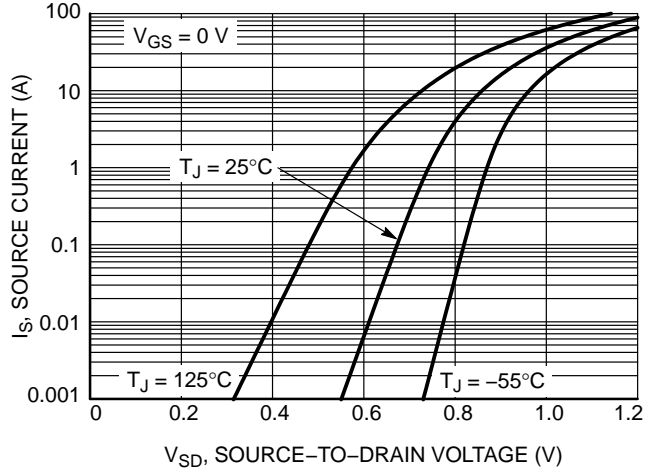


Figure 10. Diode Forward Voltage vs. Current

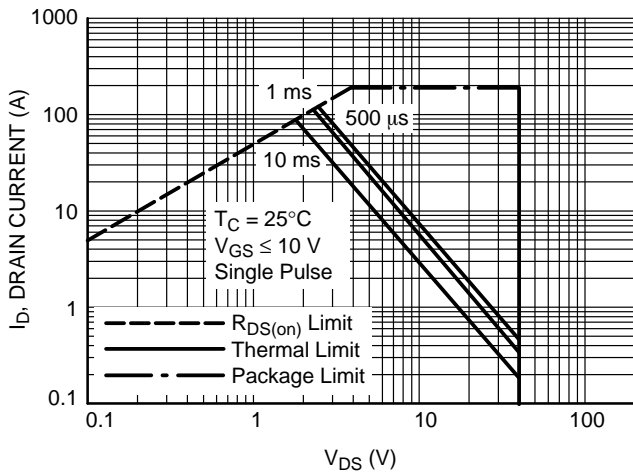


Figure 11. Safe Operating Area

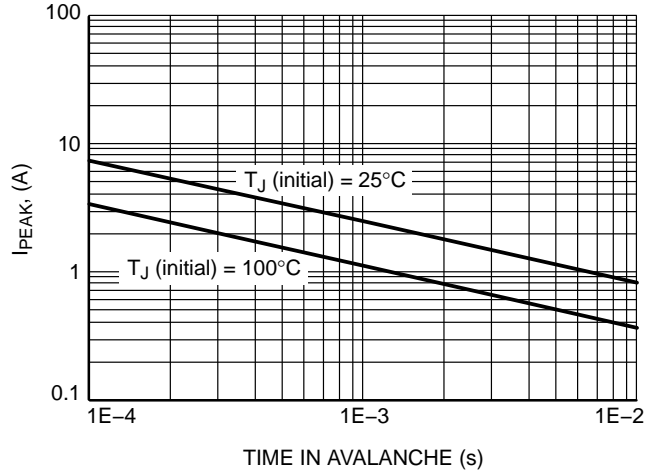


Figure 12. IPEAK vs. Time in Avalanche

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TYPICAL CHARACTERISTICS

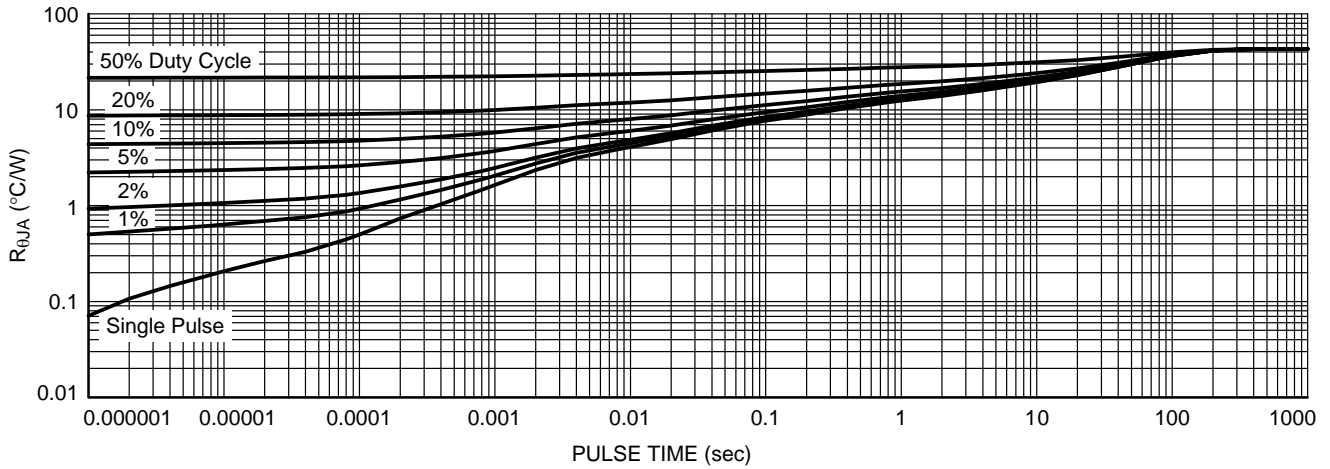


Figure 13. Thermal Characteristics

DEVICE ORDERING INFORMATION

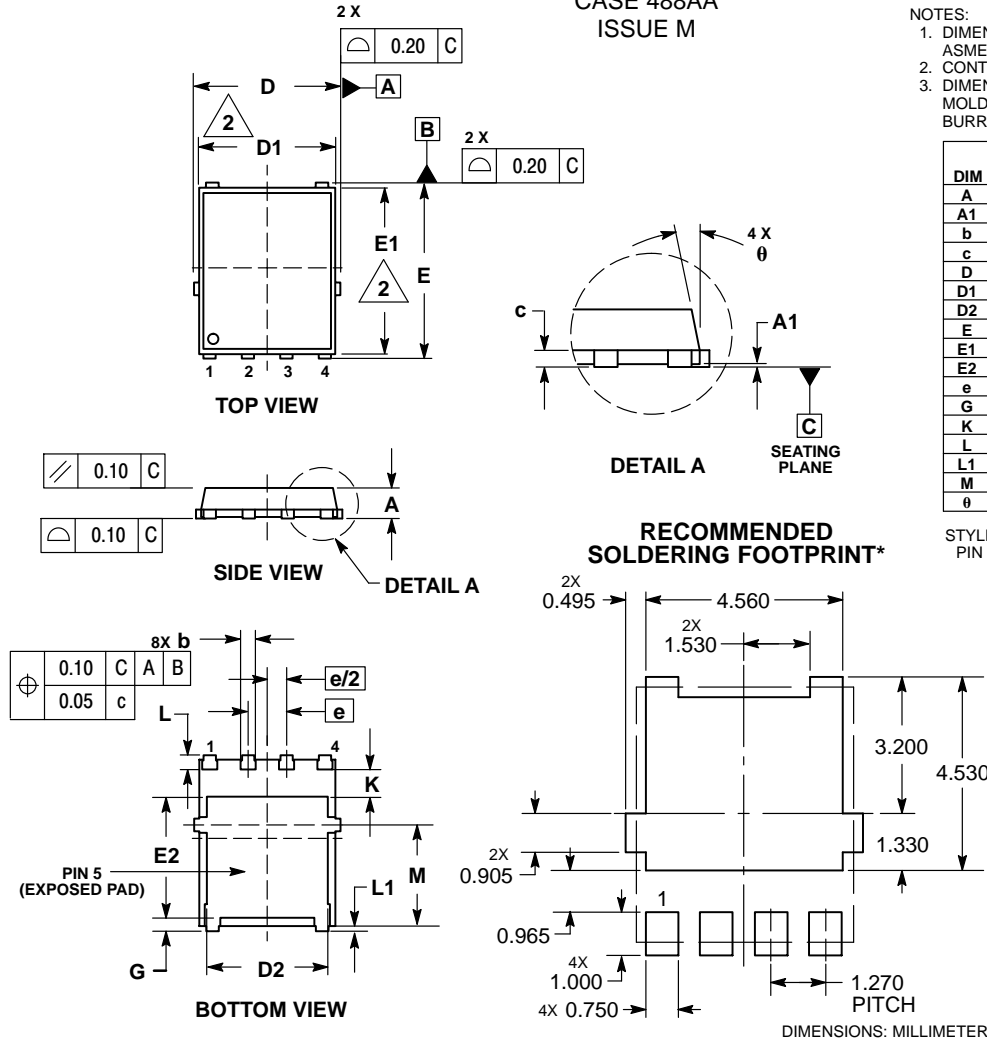
Device	Marking	Package	Shipping†
NVMFS5C468NLT1G	5C468L	DFN5 (Pb-Free)	1500 / Tape & Reel
NVMFS5C468NLWFT1G	468LWF	DFN5 (Pb-Free, Wettable Flanks)	1500 / Tape & Reel
NVMFS5C468NLT3G	5C468L	DFN5 (Pb-Free)	5000 / Tape & Reel
NVMFS5C468NLWFT3G	468LWF	DFN5 (Pb-Free, Wettable Flanks)	5000 / Tape & Reel
NVMFS5C468NLAFT1G	5C468L	DFN5 (Pb-Free)	1500 / Tape & Reel
NVMFS5C468NLWFAFT1G	468LWF	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.

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PACKAGE DIMENSIONS

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



*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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