

NVMFD5483NL

Power MOSFET

60 V, 36 mΩ, 24 A, Dual N-Channel

Features

- Small Footprint (5x6 mm) for Compact Designs
- Low $R_{DS(on)}$ to Minimize Conduction Losses
- Low Capacitance to Minimize Driver Losses
- 175°C Operating Temperature
- NVMFD5483NLWF – Wettable Flank Option for Enhanced Optical Inspection
- AEC-Q101 Qualified and PPAP Capable
- This is a Pb-Free Device

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V_{DS}	60	V
Gate-to-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current $R_{\theta JC}$ (Notes 1, 2, 4)	Steady State	$T_C = 25^\circ\text{C}$	I_D 24	A
		$T_C = 100^\circ\text{C}$	17	
Power Dissipation $R_{\theta JC}$ (Notes 1, 2)	Steady State	$T_C = 25^\circ\text{C}$	P_D 44.1	W
		$T_C = 100^\circ\text{C}$	22.1	
Continuous Drain Current $R_{\theta JA}$ (Notes 1, 3 & 4)	Steady State	$T_A = 25^\circ\text{C}$	I_D 6.4	A
		$T_A = 100^\circ\text{C}$	4.5	
Power Dissipation $R_{\theta JA}$ (Notes 1 & 3)	Steady State	$T_A = 25^\circ\text{C}$	P_D 3.1	W
		$T_A = 100^\circ\text{C}$	1.5	
Pulsed Drain Current	$T_A = 25^\circ\text{C}$, $t_p = 10 \mu\text{s}$	I_{DM}	153	A
Operating Junction and Storage Temperature		T_J, T_{stg}	-55 to 175	$^\circ\text{C}$
Source Current (Body Diode)		I_S	39	A
Single Pulse Drain-to-Source Avalanche Energy ($T_J = 25^\circ\text{C}$, $V_{GS} = 10 \text{ V}$, $I_{L(pk)} = 28 \text{ A}$, $L = 0.1 \text{ mH}$)		E_{AS}	39	mJ
Lead Temperature for Soldering Purposes (1/8" from case for 10 s)		T_L	260	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL RESISTANCE MAXIMUM RATINGS (Note 1)

Parameter	Symbol	Value	Unit
Junction-to-Case – Steady State (Note 2)	$R_{\theta JC}$	3.4	$^\circ\text{C/W}$
Junction-to-Ambient – Steady State (Note 3)	$R_{\theta JA}$	49	

1. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2. Surface-mounted to an ideal (infinite) heat sink.
3. Surface-mounted on FR4 board using a 650 mm², 2 oz. Cu pad.
4. Maximum current for pulses as long as 1 second are higher but are dependent on pulse duration and duty cycle.

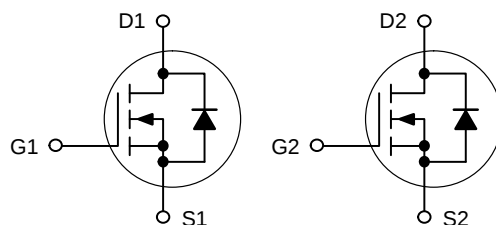


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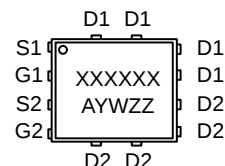
$V_{(BR)DSS}$	$R_{DS(on)}$ MAX	I_D MAX
60 V	36 mΩ @ 10 V	24 A
	45 mΩ @ 4.5 V	

Dual N-Channel



MARKING DIAGRAM

DFN8 5x6
(SO8FL)
CASE 506BT



XXXXXX = 5483NL
(NVMFD5483NL) or
5483LW
(NVMFD5483NLWF)
A = Assembly Location
Y = Year
W = Work Week
ZZ = Lot Traceability

ORDERING INFORMATION

Device	Package	Shipping†
NVMFD5483NLT1G	DFN8 (Pb-Free)	1500/ Tape & Reel
NVMFD5483NLT3G	DFN8 (Pb-Free)	5000/ Tape & Reel
NVMFD5483NLWFT1G	DFN8 (Pb-Free)	1500/ Tape & Reel
NVMFD5483NLWFT3G	DFN8 (Pb-Free)	5000/ Tape & Reel

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

NVMFD5483NL

ELECTRICAL CHARACTERISTICS (T_J = 25°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 V, I _D = 250 μA	60			V
Drain-to-Source Breakdown Voltage Temperature Coefficient	V _{(BR)DSS} /T _J	Reference to 25°C I _D = 250 μA		63		mV/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} = 0 V, V _{DS} = 60 V	T _J = 25°C		1.0	μA
			T _J = 125°C		10	
Gate-to-Source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA

ON CHARACTERISTICS (Note 5)

Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250 μA	1.5		2.5	V
Gate Threshold Voltage Temperature Coefficient	V _{GS(TH)} /T _J	Reference to 25°C I _D = 250 μA		-5.2		mV/°C
Drain-to-Source On Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 15 A		29	36	mΩ
		V _{GS} = 4.5 V, I _D = 15 A		36	45	

CHARGES AND CAPACITANCES

Input Capacitance	C _{iss}	V _{GS} = 0 V, f = 1.0 MHz, V _{DS} = 25 V		668		pF
Output Capacitance	C _{oss}			152		
Reverse Transfer Capacitance	C _{rss}			67		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 10 V, V _{DS} = 48 V, I _D = 10 A		23.4		nC
Threshold Gate Charge	Q _{G(TH)}			0.65		
Gate-to-Source Charge	Q _{GS}			2.14		
Gate-to-Drain Charge	Q _{GD}			9.16		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 4.5 V, V _{DS} = 48 V, I _D = 10 A		13.2		nC

SWITCHING CHARACTERISTICS (Note 6)

Turn-On Delay Time	t _{d(on)}	V _{GS} = 4.5 V, V _{DS} = 48 V, I _D = 5.0 A, R _G = 2.5 Ω		6.8		ns
Rise Time	t _r			10.3		
Turn-Off Delay Time	t _{d(off)}			37.5		
Fall Time	t _f			23.5		

DRAIN-SOURCE DIODE CHARACTERISTICS

Forward Diode Voltage	V _{SD}	V _{GS} = 0 V, I _S = 10 A	T _J = 25°C		0.87	1.2	V
			T _J = 125°C		0.82		
Reverse Recovery Time	t _{RR}	V _{GS} = 0 V, dI _S /dI _t = 100 A/μs, I _S = 10 A			30		ns
Charge Time	t _a				23.3		
Discharge Time	t _b				6.7		
Reverse Recovery Charge	Q _{RR}				35		nC

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

6. Switching characteristics are independent of operating junction temperatures.

TYPICAL CHARACTERISTICS

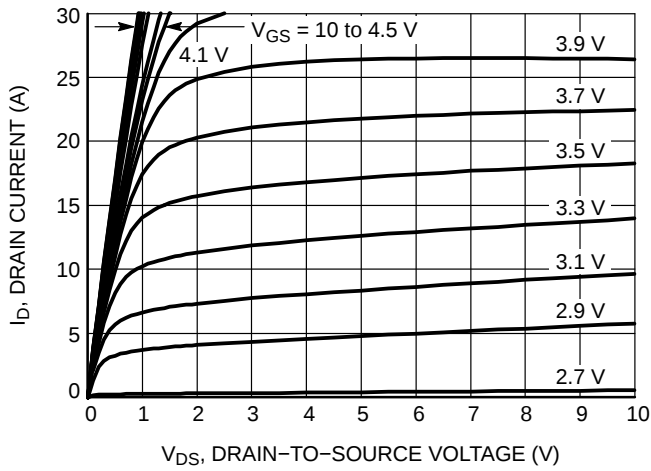


Figure 1. On-Region Characteristics

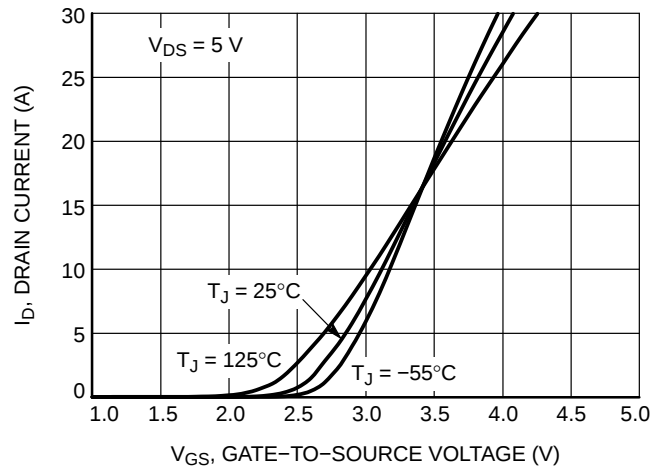


Figure 2. Transfer Characteristics

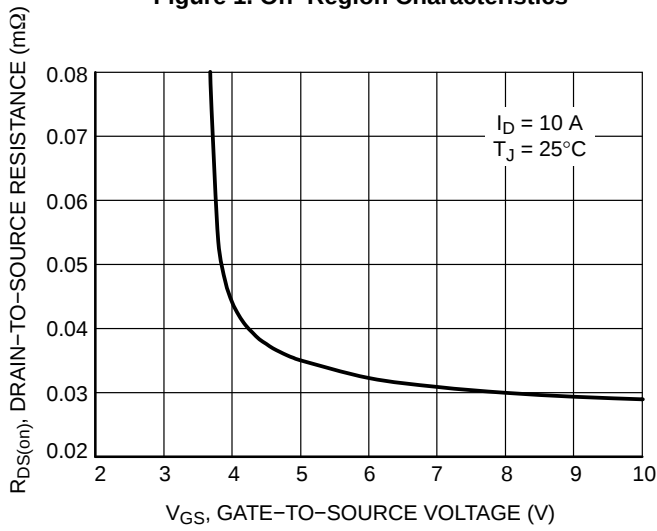


Figure 3. On-Resistance vs. V_{GS}

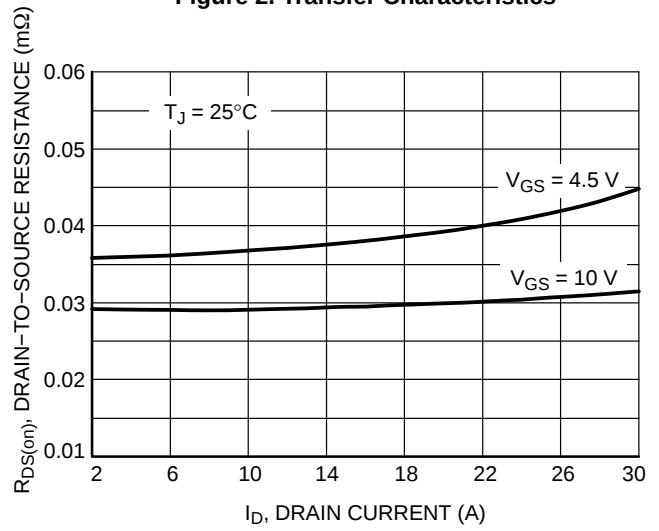


Figure 4. On-Resistance vs. Drain Current and Gate Voltage

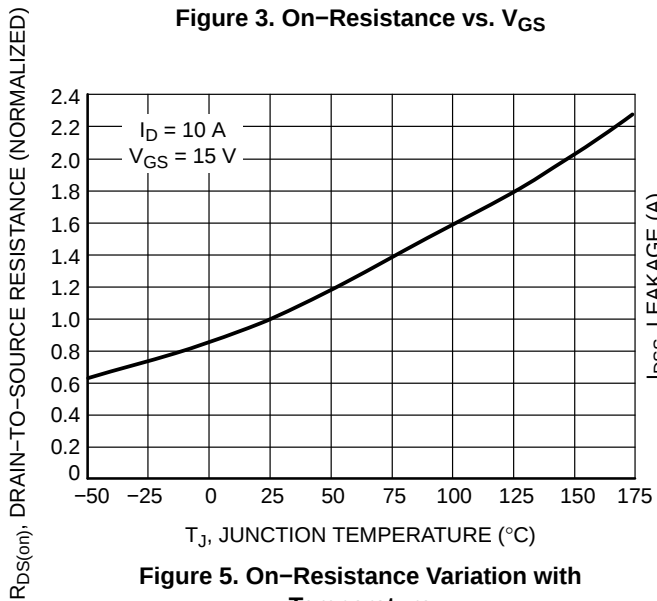


Figure 5. On-Resistance Variation with Temperature

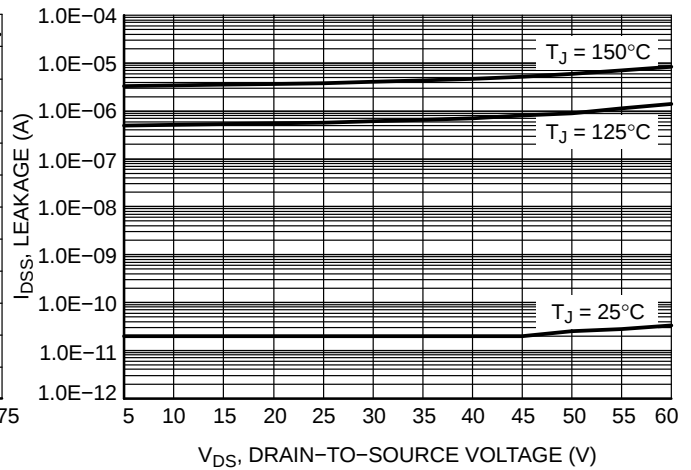


Figure 6. Drain-to-Source Leakage Current vs. Voltage

TYPICAL CHARACTERISTICS

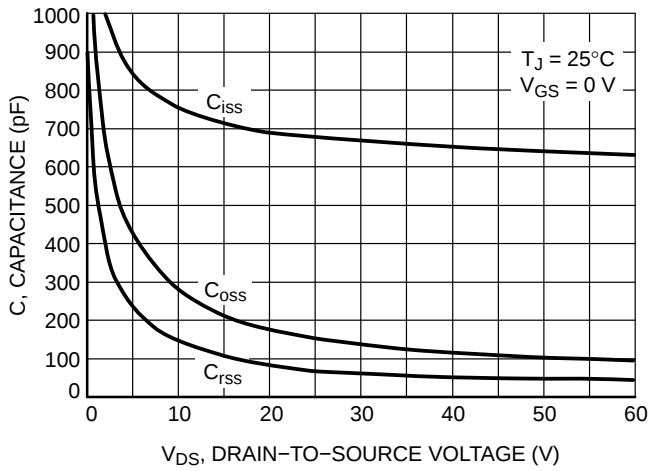


Figure 7. Capacitance Variation

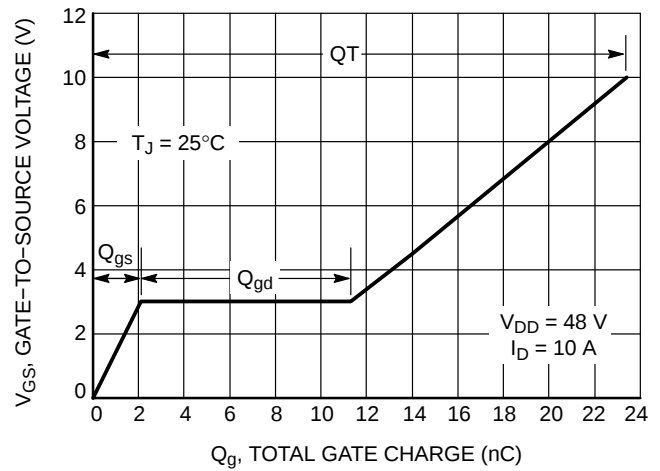


Figure 8. Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

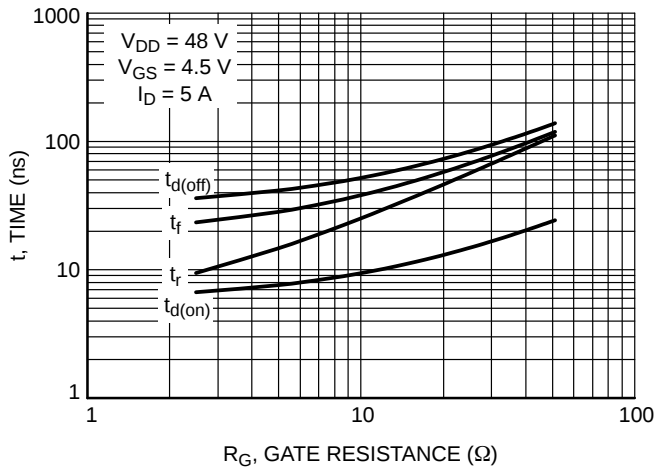


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

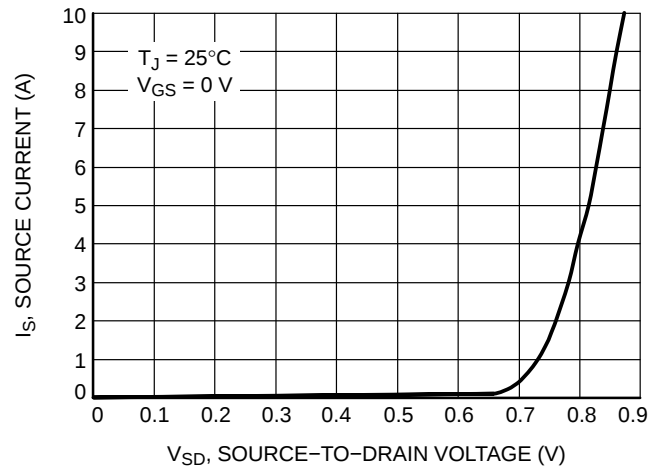


Figure 10. Diode Forward Voltage vs. Current

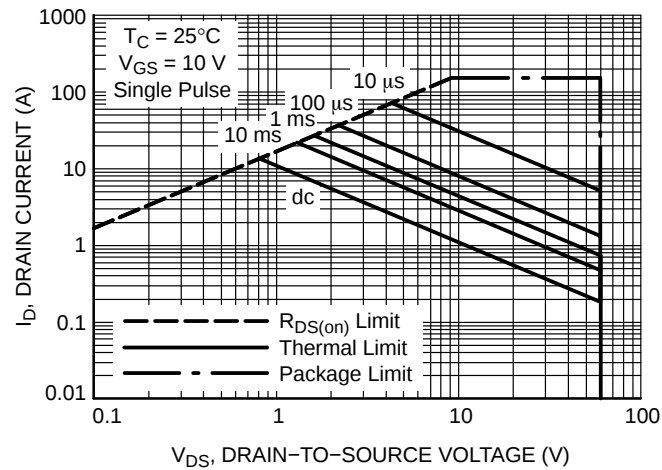


Figure 11. Maximum Rated Forward Biased Safe Operating Area

TYPICAL CHARACTERISTICS

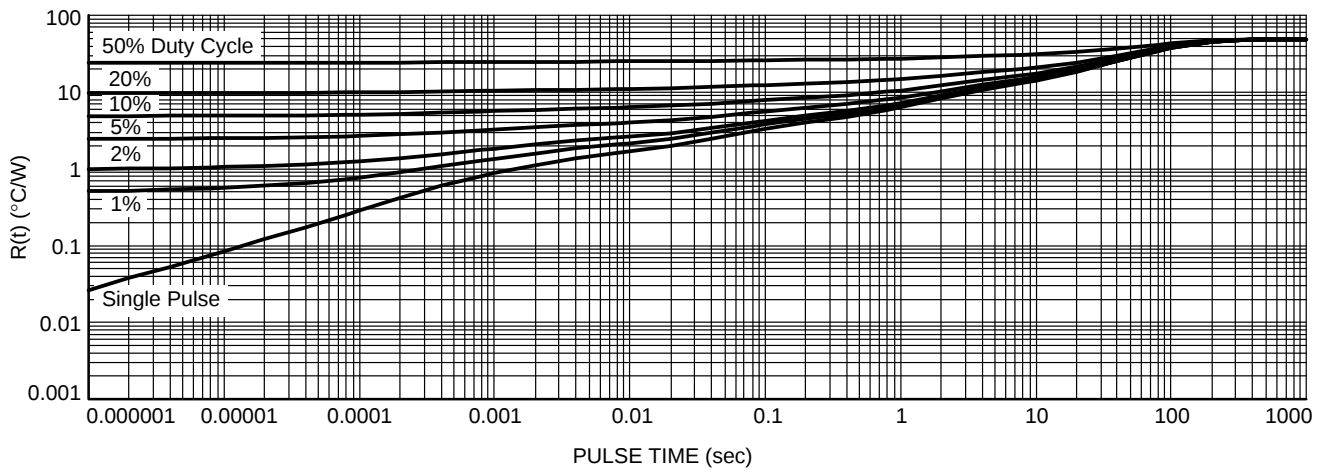


Figure 12. Thermal Response



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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