

Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[Torex Semiconductor Ltd](#)
[XP161A11A1PR-G](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

XP161A11A1PR-G

ETR1122_003

Power MOSFET

■ GENERAL DESCRIPTION

The XP161A11A1PR-G is an N-channel Power MOSFET with low on-state resistance and ultra high-speed switching characteristics.

Because high-speed switching is possible, the IC can be efficiently set thereby saving energy.

A gate protect diode is built-in to prevent static damage.

The small SOT-89 package makes high density mounting possible.

■ APPLICATIONS

- Notebook PCs
- Cellular and portable phones
- On-board power supplies
- Li-ion battery systems

■ FEATURES

Low On-State Resistance : $R_{ds(on)}=0.065\Omega$ @ $V_{gs}=10V$
: $R_{ds(on)}=0.105\Omega$ @ $V_{gs}=4.5V$

Ultra High-Speed Switching

Gate Protect Diode Built-in

Driving Voltage : 4.5V

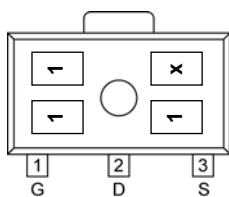
N-Channel Power MOSFET

DMOS Structure

Small Package : SOT-89

Environmentally Friendly : EU RoHS Compliant, Pb Free

■ PIN CONFIGURATION/MARKING

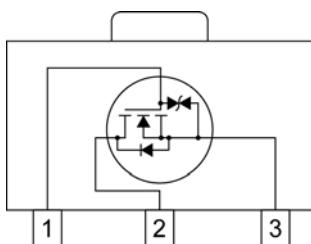


G : Gate
S : Source
D : Drain

SOT-89
(TOP VIEW)

* x represents production lot number.

■ EQUIVALENT CIRCUIT



N-channel MOSFET
(1 device built-in)

■ PRODUCT NAME

PRODUCTS	PACKAGE	ORDER UNIT
XP161A11A1PR	SOT-89	1,000/Reel
XP161A11A1PR-G ^(*)	SOT-89	1,000/Reel

^(*) The "-G" suffix denotes Halogen and Antimony free as well as being fully RoHS compliant.

■ ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

PARAMETER	SYMBOL	RATINGS	UNITS
Drain - Source Voltage	V _{dss}	30	V
Gate - Source Voltage	V _{gss}	±20	V
Drain Current (DC)	I _d	4	A
Drain Current (Pulse)	I _{dp}	16	A
Reverse Drain Current	I _{dr}	4	A
Channel Power Dissipation *	P _d	2	W
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55~150	°C

* When implemented on a ceramic PCB

XP161A11A1PR-G

■ ELECTRICAL CHARACTERISTICS

DC Characteristics

 $T_a = 25^{\circ}\text{C}$

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Drain Cut-Off Current	I_{dss}	$V_{ds}=30V, V_{gs}=0V$	-	-	10	μA
Gate-Source Leak Current	I_{gss}	$V_{gs}= \pm 20V, V_{ds}=0V$	-	-	± 10	μA
Gate-Source Cut-Off Voltage	$V_{gs(off)}$	$I_d=1mA, V_{ds}=10V$	1.0	-	2.5	V
Drain-Source On-State Resistance*1	$R_{ds(on)}$	$I_d=2A, V_{gs}=10V$	-	0.05	0.065	Ω
		$I_d=2A, V_{gs}=4.5V$	-	0.075	0.105	Ω
Forward Transfer Admittance *1	$ Y_{fs} $	$I_d=2A, V_{ds}=10V$	-	5.5	-	S
Body Drain Diode Forward Voltage	V_f	$I_f=4A, V_{gs}=0V$	-	0.85	1.1	V

*1 Effective during pulse test.

Dynamic Characteristics

 $T_a = 25^{\circ}\text{C}$

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Input Capacitance	C_{iss}	$V_{ds}=10V, V_{gs}=0V$ $f=1MHz$	-	270	-	pF
Output Capacitance	C_{oss}		-	150	-	pF
Feedback Capacitance	C_{rss}		-	55	-	pF

Switching Characteristics

 $T_a = 25^{\circ}\text{C}$

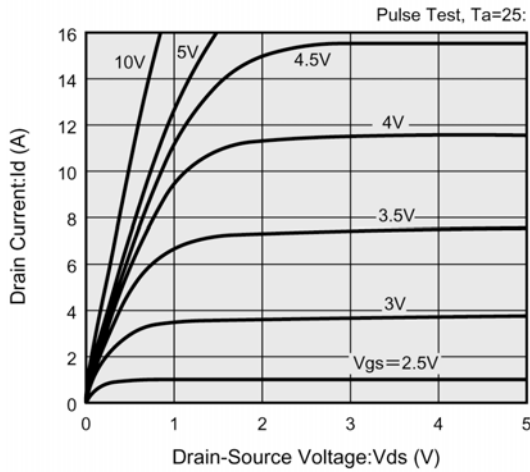
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Turn-On Delay Time	$t_d(on)$	$V_{gs}=5V, I_d=2A$ $V_{dd}=10V$	-	10	-	ns
Rise Time	t_r		-	15	-	ns
Turn-Off Delay Time	$t_d(off)$		-	35	-	ns
Fall Time	t_f		-	15	-	ns

Thermal Characteristics

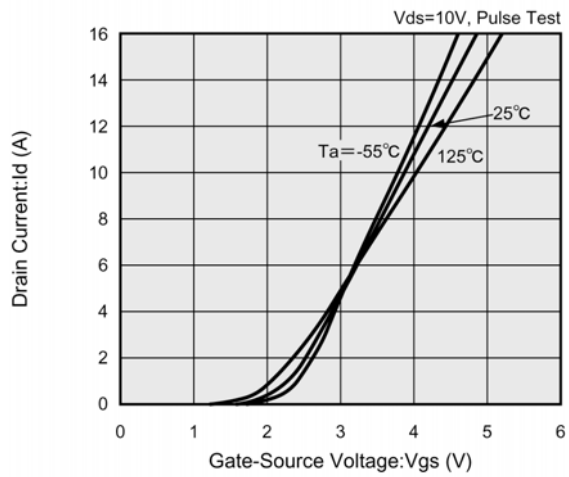
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Thermal Resistance (Channel-Ambience)	$R_{th(ch-a)}$	Implement on a ceramic PCB	-	62.5	-	$^{\circ}\text{C/W}$

■ TYPICAL PERFORMANCE CHARACTERISTICS

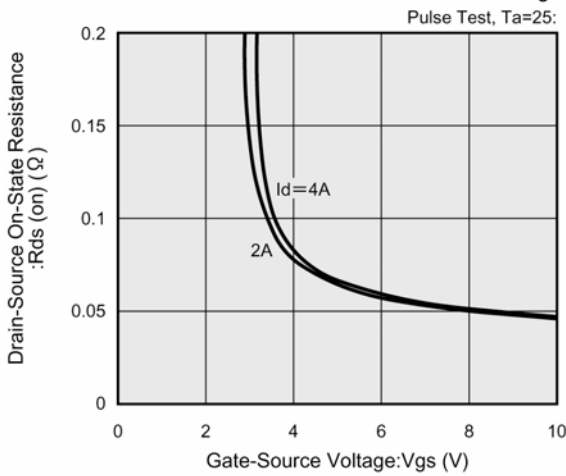
(1) Drain Current vs. Drain-Source Voltage



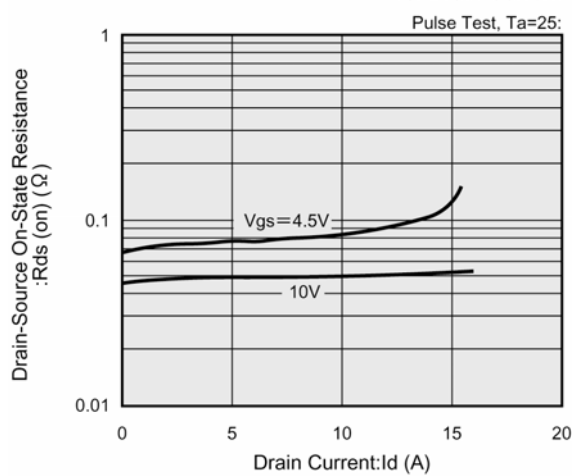
(2) Drain Current vs. Gate-Source Voltage



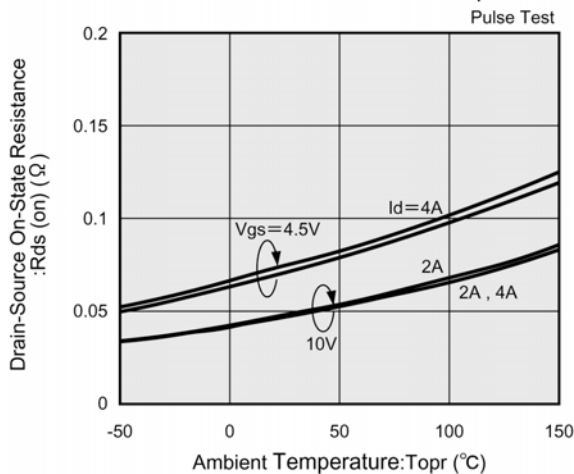
(3) Drain-Source On-State Resistance vs. Gate-Source Voltage



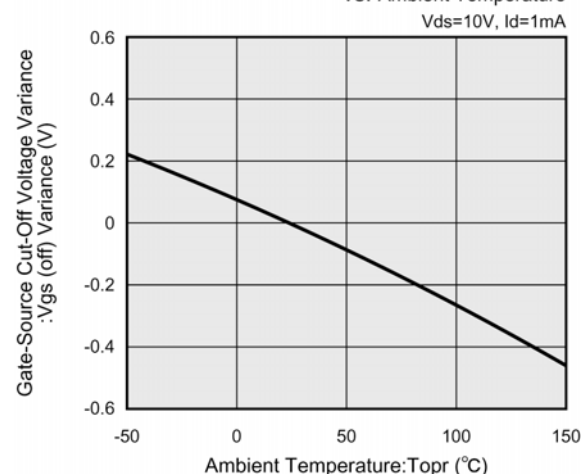
(4) Drain-Source On-State Resistance vs. Drain Current



(5) Drain-Source On-State Resistance vs. Ambient Temperature



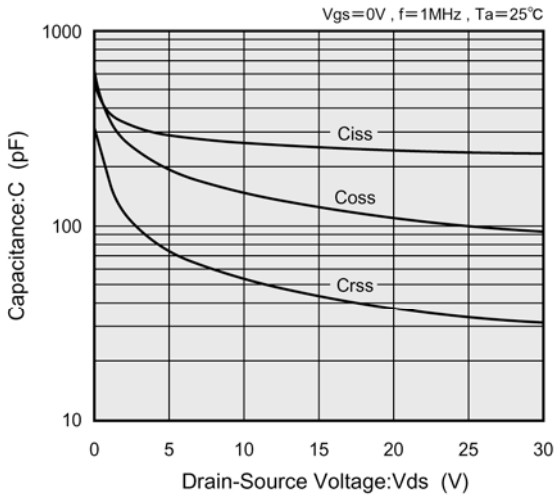
(6) Gate-Source Cut-Off Voltage Variance vs. Ambient Temperature



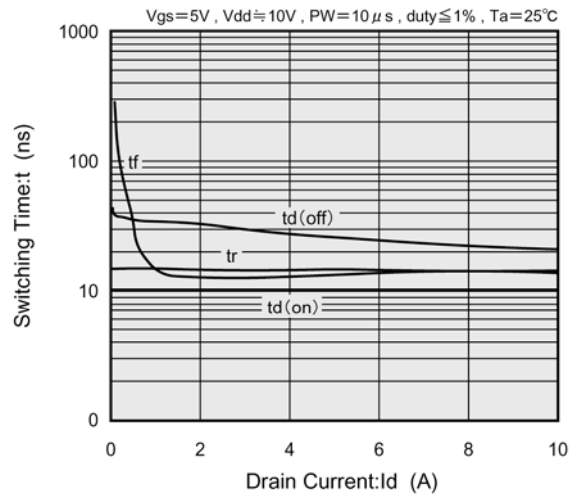
XP161A11A1PR-G

■ TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

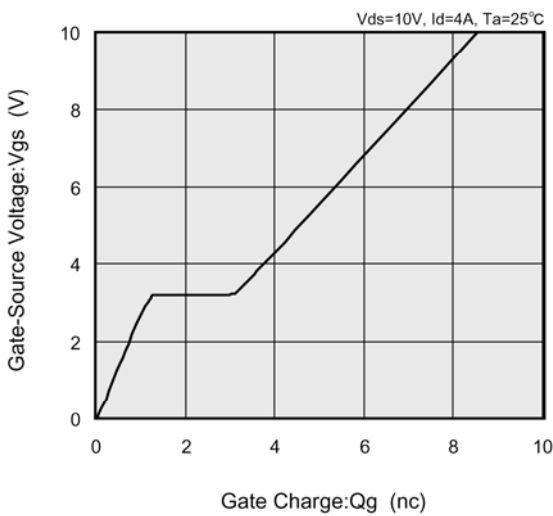
(7) Capacitance vs. Drain-Source Voltage



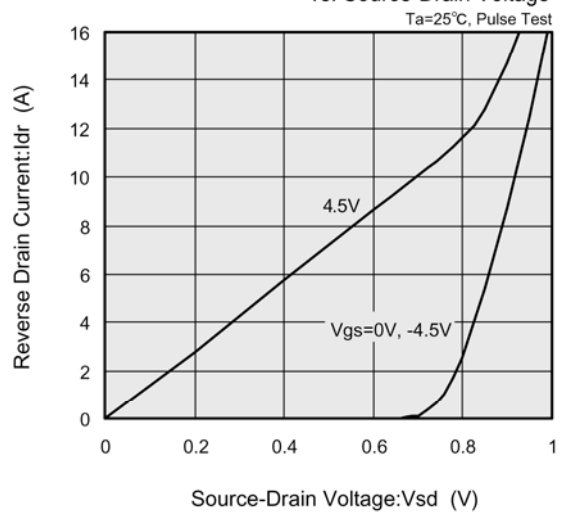
(8) Switching Time vs. Drain Current



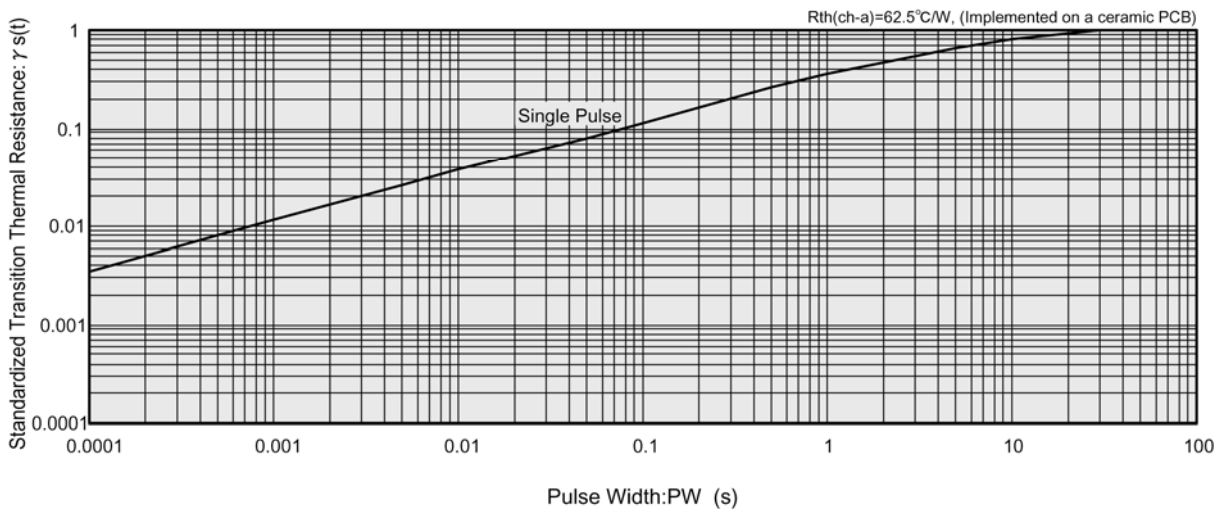
(9) Gate-Source Voltage vs. Gate Charge



(10) Reverse Drain Current vs. Source-Drain Voltage



(11) Standardized transition Thermal Resistance vs. Pulse Width



1. The products and product specifications contained herein are subject to change without notice to improve performance characteristics. Consult us, or our representatives before use, to confirm that the information in this catalog is up to date.
2. We assume no responsibility for any infringement of patents, patent rights, or other rights arising from the use of any information and circuitry in this catalog.
3. Please ensure suitable shipping controls (including fail-safe designs and aging protection) are in force for equipment employing products listed in this catalog.
4. The products in this catalog are not developed, designed, or approved for use with such equipment whose failure or malfunction can be reasonably expected to directly endanger the life of, or cause significant injury to, the user.
(e.g. Atomic energy; aerospace; transport; combustion and associated safety equipment thereof.)
5. Please use the products listed in this catalog within the specified ranges.
Should you wish to use the products under conditions exceeding the specifications, please consult us or our representatives.
6. We assume no responsibility for damage or loss due to abnormal use.
7. All rights reserved. No part of this catalog may be copied or reproduced without the prior permission of Torex Semiconductor Ltd.

TOREX SEMICONDUCTOR LTD.