## TOIREX

# **XP162A11C0PR-G**

ETR11025-004

#### **Power MOSFET**

#### **■**GENERAL DESCRIPTION

The XP162A11C0PR is a P-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.

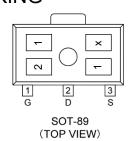
A gate protect diode is built-in to prevent static damage.

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

## ■PIN CONFIGURATION/ MARKING



G : Gate S : Source D : Drain

#### ■FEATURES

Low On-State Resistance : Rds(on)=0.15 Ω@Vgs=-10V

: Rds(on)=0.28 Ω @Vgs=-4.5V

Ultra High-Speed Switching
Driving Voltage : -4.5V
Gate Protect Diode Built-in
P-Channel Power MOSFET
DMOS Structure

Package : SOT-89

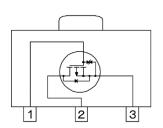
#### **■PRODUCT NAME**

PRODUCT	PACKAGE	ORDER UNIT
XP162A11C0PR-G*	SOT-89	1,000pcs/Reel

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

#### \* x represents production lot number.

#### **■**EQUIVALENT CIRCUIT



P-channel MOSFET (1 device built-in)

#### ■ ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

		18	1 = 25 C
PARAMETER	SYMBOL	RATINGS	UNITS
Drain-Source Voltage	Vdss	-30	V
Gate-Source Voltage	Vgss	±20	V
Drain Current (DC)	ld	-2.5	Α
Drain Current (Pulse)	ldp	-10	Α
Reverse Drain Current	ldr	-2.5	Α
Channel Power Dissipation *	Pd	2	W
Channel Temperature	Tch	150	°C
Storage Temperature Range	Tstg	-55~150	°C

<sup>\*</sup> When implemented on a ceramic PCB (900mm<sup>2</sup> x 0.8mm)

## **■**ELECTRICAL CHARACTERISTICS

DC Characteristics Ta = 25°C

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Drain Cut-Off Current	ldss	Vds= -30V, Vgs= 0V	-	-	-10	μΑ
Gate-Source Leak Current	lgss	Vgs= ±20V, Vds= 0V	-	-	±10	μΑ
Gate-Source Cut-Off Voltage	Vgs(off)	Id= -1mA, Vds= -10V	-1.0	-	-2.5	V
Drain-Source On-State Resistance*1	Dda(an)	Id= -1.5A, Vgs= -10V	-	0.11	0.15	Ω
Dialii-Source Oil-State Resistance 1	Rds(on)	Id= -1.5A, Vgs= -4.5V	-	0.20	0.28	Ω
Forward Transfer Admittance*1	Yfs	Id= -1.5A, Vds= -10V	-	2.5	-	S
Body Drain Diode Forward Voltage	Vf	If= -2.5A, Vgs= 0V	-	-0.85	-1.1	V

<sup>\*1</sup> Effective during pulse test.

#### **Dynamic Characteristics**

Ta = 25°C

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Input Capacitance	Ciss		-	280	-	pF
Output Capacitance	Coss	Vds= -10V, Vgs=0V f= 1MHz	-	200	-	pF
Feedback Capacitance	Crss		-	90	-	pF

#### **Switching Characteristics**

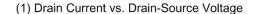
Ta = 25°C

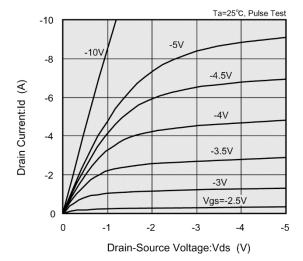
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Turn-On Delay Time	td (on)		-	10	-	ns
Rise Time	tr	Vgs= -5V, Id= -1.5A Vdd= -10V	-	30	-	ns
Turn-Off Delay Time	td (off)		-	20	-	ns
Fall Time	tf		-	35	-	ns

#### Thermal Characteristics

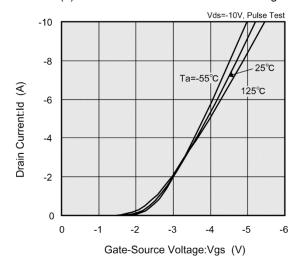
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Thermal Resistance (Channel-Ambience)	Rth (ch-a)	Implement on a ceramic PCB	-	62.5	-	°C/W

#### **■**TYPICAL PERFORMANCE CHARACTERISTICS

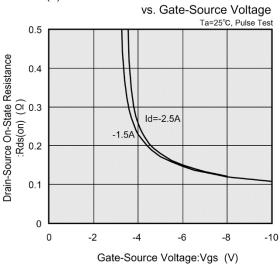




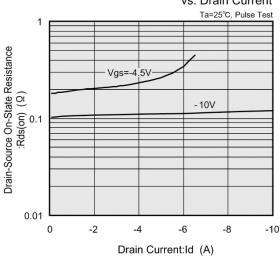
#### (2) Drain Current vs. Gate-Source Voltage



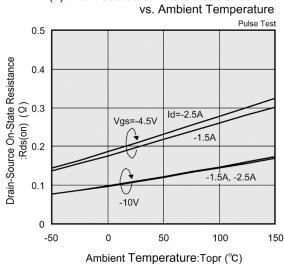
## (3) Drain-Source On-State Resistance



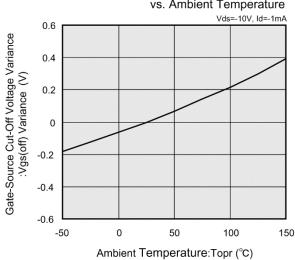
#### (4) Drain-Source On-State Resistance vs. Drain Current



## (5) Drain-Source On-State Resistance

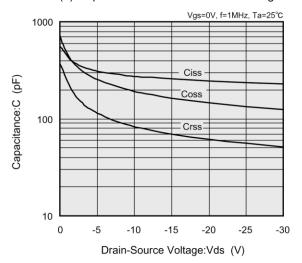


#### (6) Gate-Source Cut-Off Voltage Variance vs. Ambient Temperature

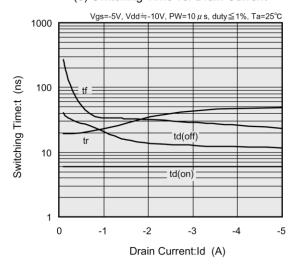


## ■TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

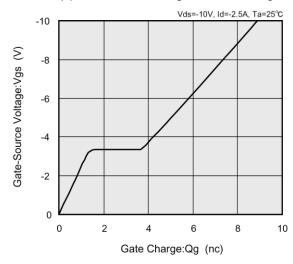
(7) Capacitance vs. Drain-Source Voltage



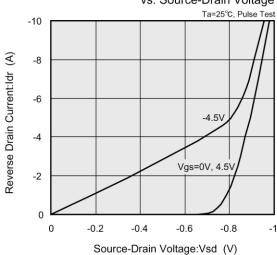
(8) Switching Time vs. Drain Current



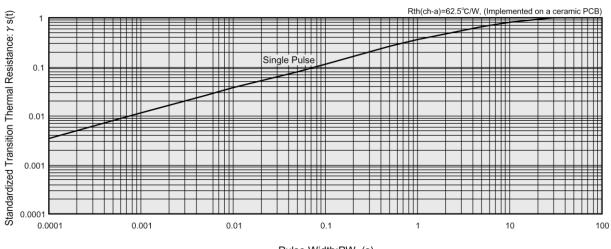
(9) Gate-Source Voltage vs. Gate Charge



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



(11) Standardized transition Thermal Resistance vs. Pulse Width



## **■**PACKAGING INFORMATION

For the latest package information go to, <a href="www.torexsemi.com/technical-support/packages">www.torexsemi.com/technical-support/packages</a>

PACKAGE	OUTLINE / LAND PATTERN	THERMAL CHARACTERISTICS
SOT-89	SOT-89 PKG	SOT-89 Power Dissipation

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