

XP162A12A6PR



Power MOS FET

- ◆ P-Channel Power MOS FET
- ◆ DMOS Structure
- ◆ Low On-State Resistance : 0.17Ω (max)
- ◆ Ultra High-Speed Switching
- ◆ Gate Protect Diode Built-in
- ◆ SOT-89 Package

General Description

The XP162A12A6PR is a P-Channel Power MOS FET 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.

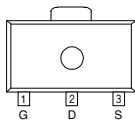
Applications

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

Features

- Low on-state resistance : $R_{ds(on)} = 0.17\Omega$ ($V_{gs} = -4.5V$)
: $R_{ds(on)} = 0.3\Omega$ ($V_{gs} = -2.5V$)
- Ultra high-speed switching
- Operational Voltage : -2.5V
- Gate protect diode built-in
- High density mounting : SOT-89

Pin Configuration

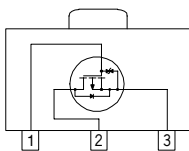


SOT-89
(TOP VIEW)

Pin Assignment

PIN NUMBER	PIN NAME	FUNCTION
1	G	Gate
2	D	Drain
3	S	Source

Equivalent Circuit



P-Channel MOS FET
(1 device built-in)

Absolute Maximum Ratings

PARAMETER	SYMBOL	RATINGS	UNITS
Drain - Source Voltage	V_{dss}	-20	V
Gate - Source Voltage	V_{gss}	± 12	V
Drain Current (DC)	I_d	-2.5	A
Drain Current (Pulse)	I_{dp}	-10	A
Reverse Drain Current	I_{dr}	-2.5	A
Continuous Channel Power Dissipation (note)	P_d	2	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	-55 - 150	°C

(note) : When implemented on a ceramic PCB

Electrical Characteristics

DC Characteristics

						Ta=25°C
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Drain Cut-off Current	Idss	Vds = - 20V , Vgs = 0V			- 10	μA
Gate-Source Leakage Current	Igss	Vgs = ± 12V , Vds = 0V			± 10	μA
Gate-Source Cut-off Voltage	Vgs (off)	Id = -1mA , Vds = - 10V	- 0.5		- 1.2	V
Drain-Source On-state Resistance (note)	Rds (on)	Id = - 1.5A , Vgs = - 4.5V		0.13	0.17	Ω
		Id = - 1.5A , Vgs = - 2.5V		0.22	0.3	Ω
Forward Transfer Admittance (note)	Yfs	Id = - 1.5A , Vds = - 10V		4		S
Body Drain Diode Forward Voltage	Vf	If = - 2.5A , Vgs = 0V		- 0.85	- 1.1	V

(note) : Effective during pulse test.

Dynamic Characteristics

						Ta=25°C
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Input Capacitance	Ciss	Vds = - 10V , Vgs = 0V f = 1 MHz		310		pF
Output Capacitance	Coss			200		pF
Feedback Capacitance	Crss			90		pF

Switching Characteristics

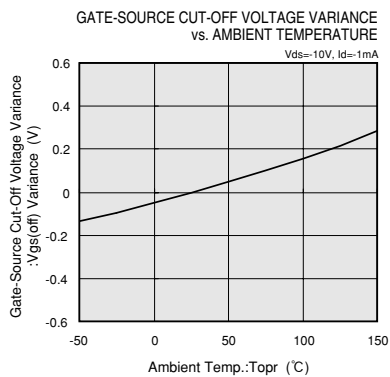
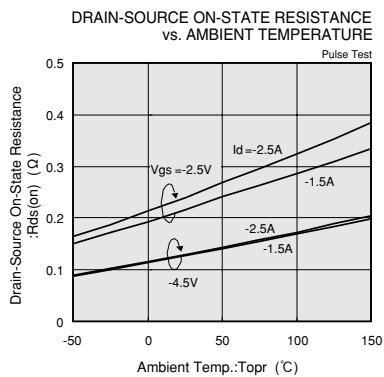
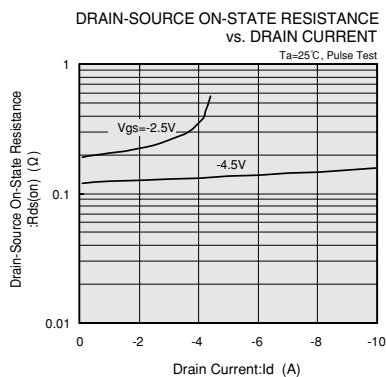
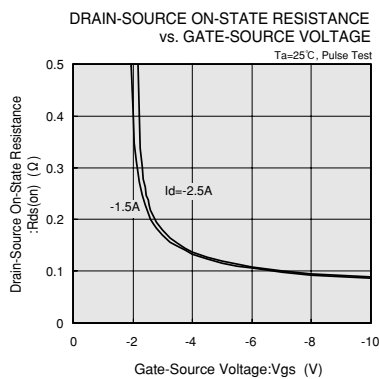
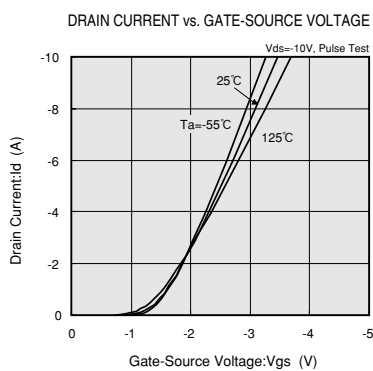
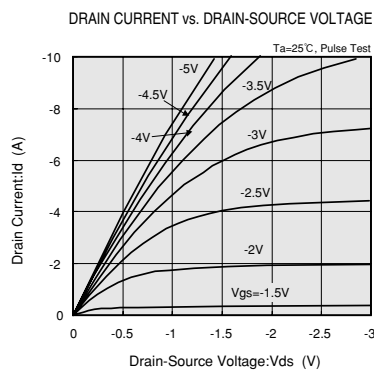
						Ta=25°C
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	td (on)	Vgs = - 5V , Id = - 1.5A Vdd = - 10V		5		ns
Rise Time	tr			15		ns
Turn-off Delay Time	td (off)			55		ns
Fall Time	tf			55		ns

Thermal Characteristics

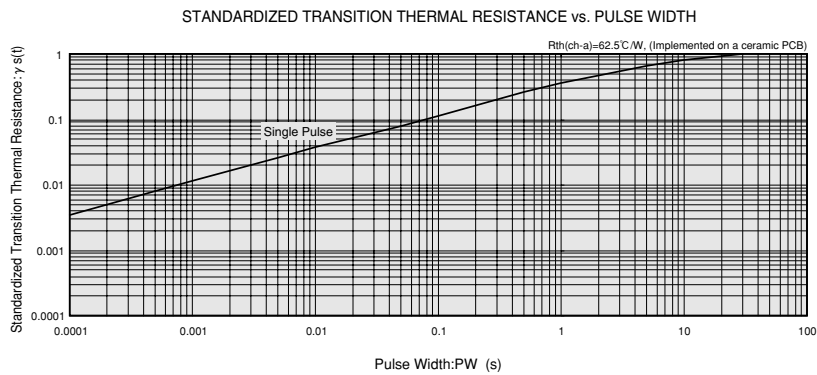
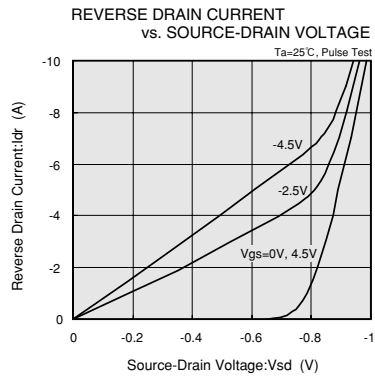
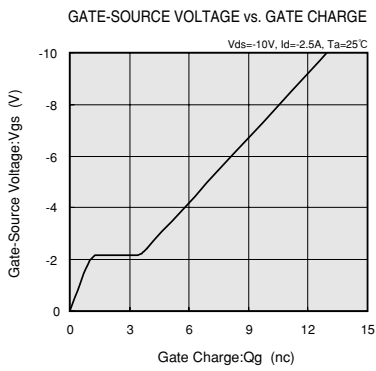
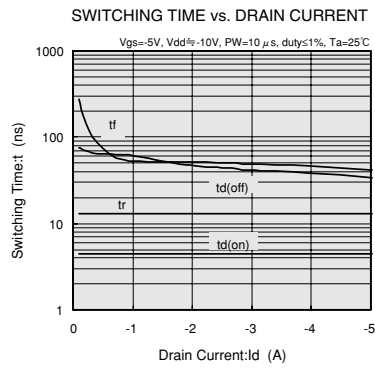
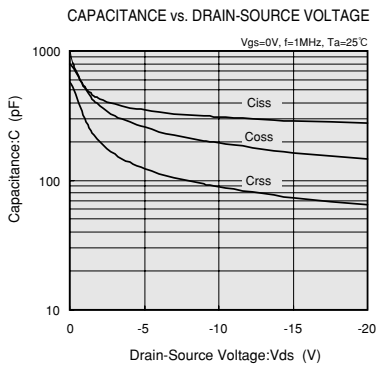
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance (channel-ambience)	Rth (ch-a)	Implement on a ceramic PCB		62.5		°C / W

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Typical Performance Characteristics



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