

- ◆ P-Channel Power MOS FET
- ◆ DMOS Structure
- ◆ Low On-State Resistance:  $0.11\Omega$  MAX
- ◆ Ultra High-Speed Switching
- ◆ SOP-8 Package
- ◆ Two FET Devices built-in

### General Description

The XP134A11A1SR is a P-Channel Power MOS FET with low on-state resistance and ultra high-speed switching characteristics. Two FET devices are built into the one package. Because high-speed switching is possible, the IC can be efficiently set thereby saving energy. The small SOP-8 package makes high density mounting possible.

### Applications

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

### Features

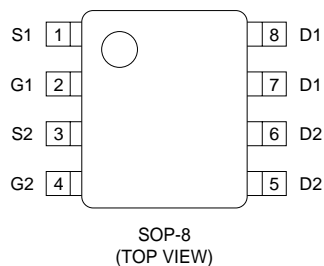
**Low on-state resistance:**  $R_{ds(on)}=0.065\Omega(V_{gs}=-10V)$   
 $R_{ds(on)}=0.11\Omega(V_{gs}=-4.5V)$

**Ultra high-speed switching**

**Operational Voltage:** -4.5V

**High density mounting:** SOP-8

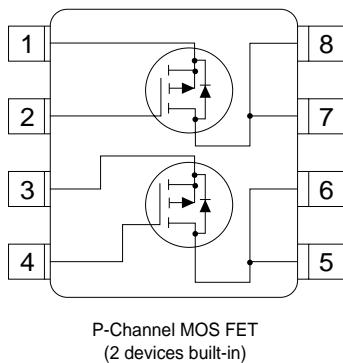
### Pin Configuration



### Pin Assignment

PIN NUMBER	PIN NAME	FUNCTION
1	S1	Source
2	G1	Gate
3	S2	Source
4	G2	Gate
5-6	D2	Drain
7-8	D1	Drain

### Equivalent Circuit



### Absolute Maximum Ratings

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

PARAMETER	SYMBOL	RATINGS	UNITS
Drain-Source Voltage	$V_{dss}$	-30	V
Gate-Source Voltage	$V_{gss}$	$\pm 20$	V
Drain Current (DC)	$I_d$	-4	A
Drain Current (Pulse)	$I_{dp}$	-16	A
Reverse Drain Current	$I_{dr}$	-4	A
Continuous Channel Power Dissipation (note)	$P_d$	2	W
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55~150	$^\circ\text{C}$

Note: When implemented on a glass epoxy PCB

### Electrical Characteristics

#### DC characteristics

Ta=25°C

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Drain Cut-off Current	I <sub>dss</sub>	V <sub>ds</sub> =-30V, V <sub>gs</sub> =0V			-10	μA
Gate-Source Leakage Current	I <sub>gss</sub>	V <sub>gs</sub> =±20V, V <sub>ds</sub> =0V			±1	μA
Gate-Source Cut-off Voltage	V <sub>gs(off)</sub>	I <sub>d</sub> =-1mA, V <sub>ds</sub> =-10V	-1.0		-2.5	V
Drain-Source On-state Resistance (note)	R <sub>ds(on)</sub>	I <sub>d</sub> =-2A, V <sub>gs</sub> =-10V		0.055	0.065	Ω
		I <sub>d</sub> =-2A, V <sub>gs</sub> =-4.5V		0.09	0.11	Ω
Forward Transfer Admittance (note)	Y <sub>fs</sub>	I <sub>d</sub> =-2A, V <sub>ds</sub> =-10V		5		S
Body Drain Diode Forward Voltage	V <sub>f</sub>	I <sub>f</sub> =-4A, V <sub>gs</sub> =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	C <sub>iss</sub>	V <sub>ds</sub> =-10V, V <sub>gs</sub> =0V f=1MHz		680		pF
Output Capacitance	C <sub>oss</sub>			450		pF
Feedback Capacitance	C <sub>rss</sub>			170		pF

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#### Switching characteristics

Ta=25°C

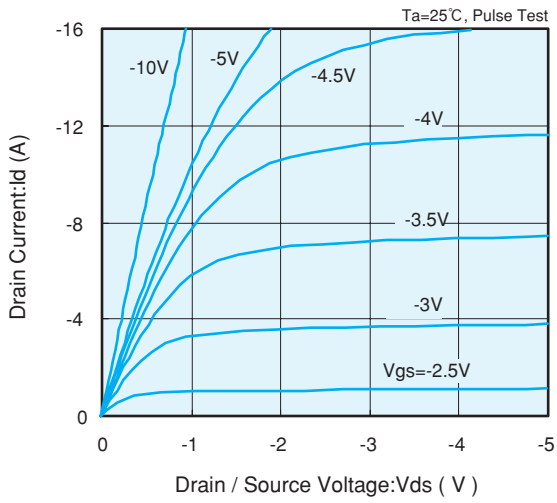
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS	
Turn-on Delay Time	t <sub>d (on)</sub>	V <sub>gs</sub> =-5V, I <sub>d</sub> =-2A V <sub>dd</sub> =-10V		15		ns	
Rise Time	t <sub>r</sub>			20		ns	
Turn-off Delay Time	t <sub>d (off)</sub>				30		ns
Fall Time	t <sub>f</sub>				20		ns

#### Thermal characteristics

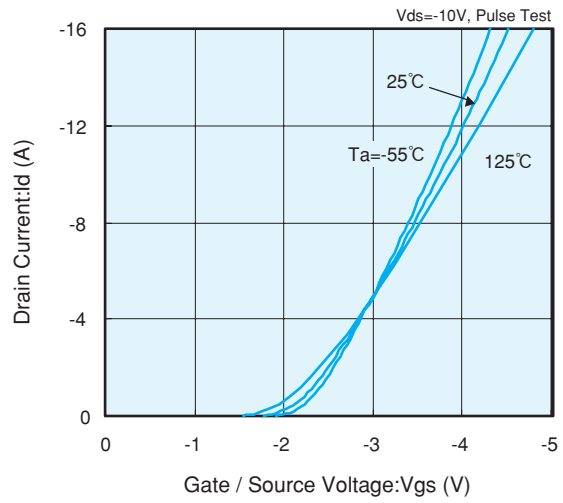
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance (channel-surroundings)	R <sub>th (ch-a)</sub>	Implement on a glass epoxy resin PCB		62.5		°C/W

## Electrical Characteristics

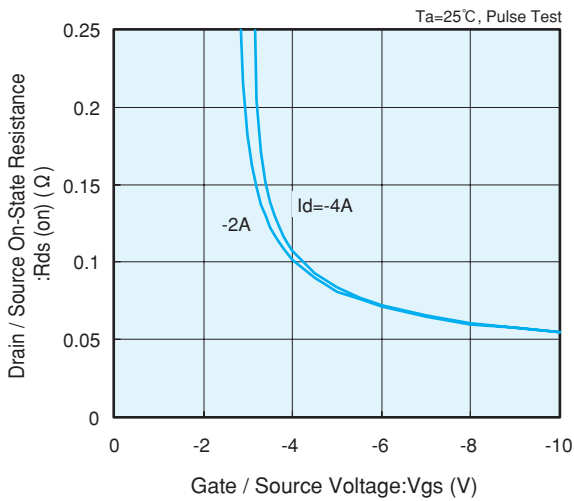
Drain Current Vs. Drain / Source Voltage



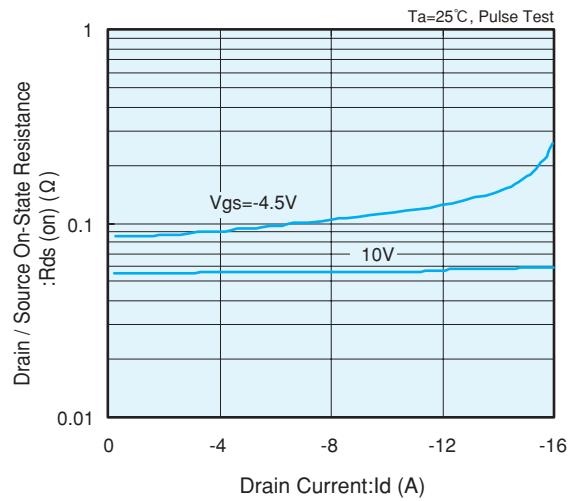
Drain Current Vs. Gate / Source Voltage



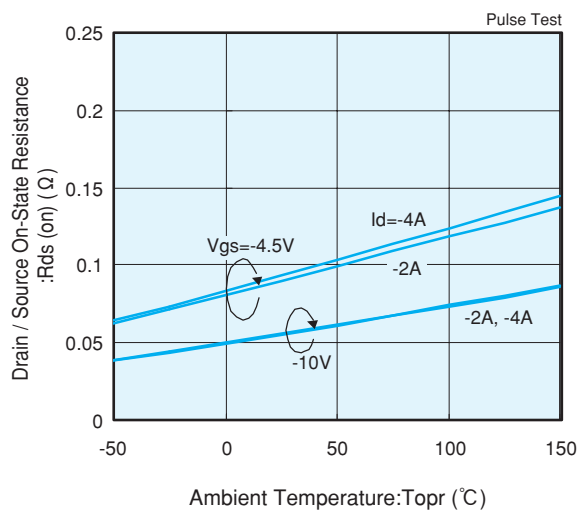
Drain / Source On-State Resistance Vs. Gate / Source Voltage



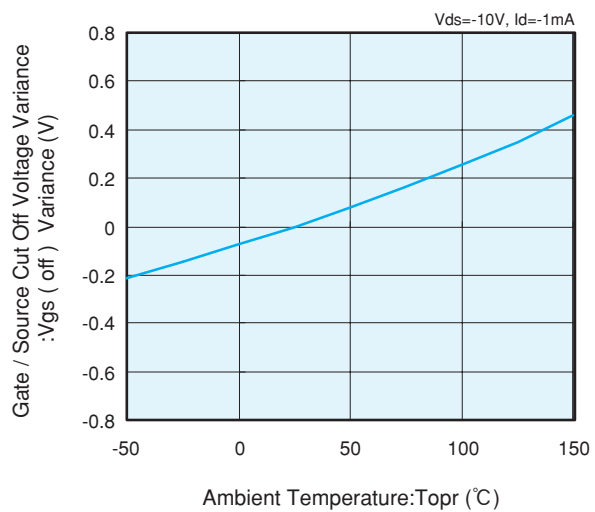
Drain / Source On-State Resistance Vs. Drain Current



Drain / Source On-State Resistance Vs. Ambient Temp.

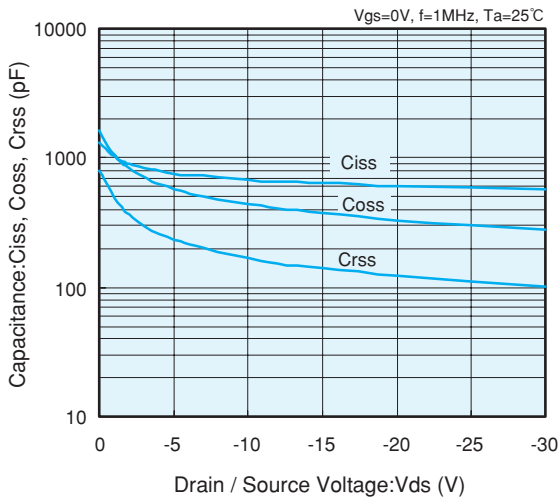


Gate / Source Cut Off Voltage Variance Vs. Ambient Temp.

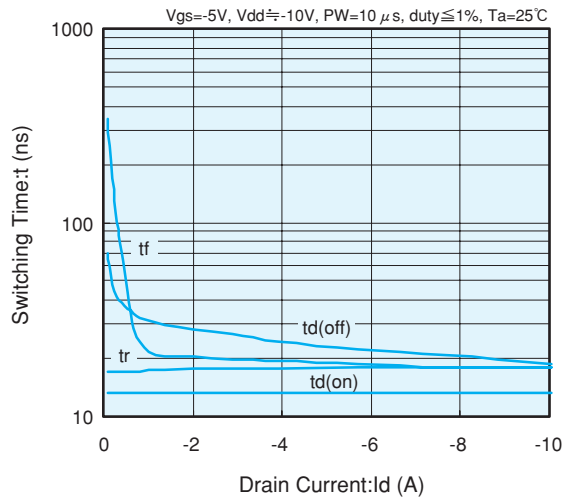


### Electrical Characteristics

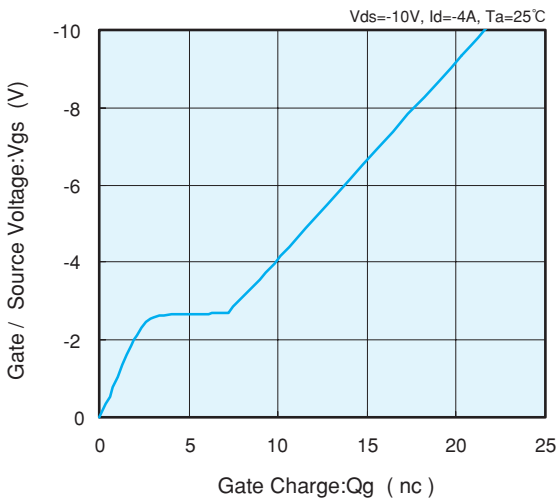
Drain / Source Voltage Vs. Capacitance



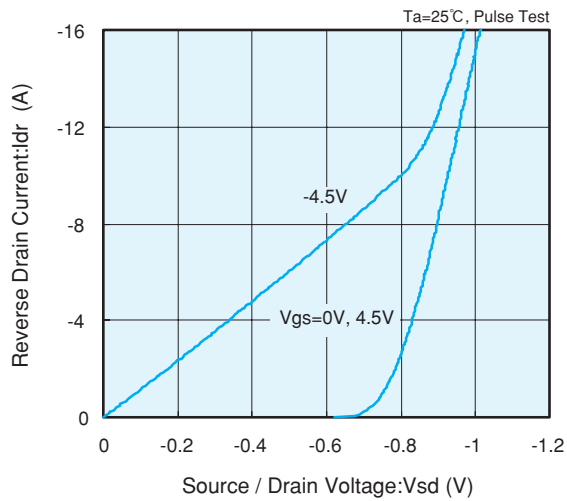
Switching Time Vs. Drain Current



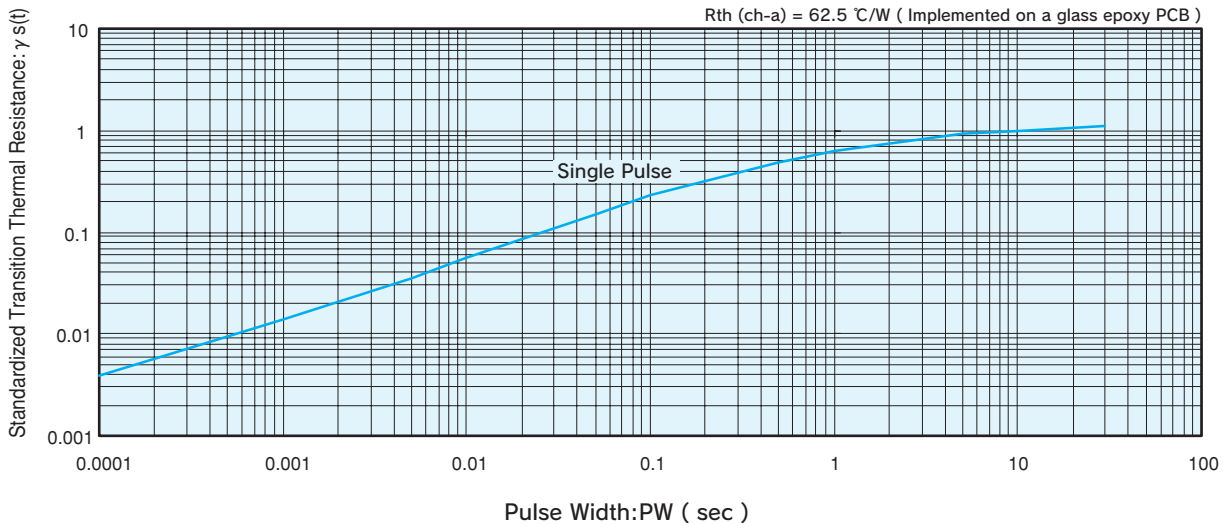
Gate / Source Voltage Vs. Gate Charge



Reverse Drain Current Vs. Source / Drain Voltage



Standardized Transition Thermal Resistance Vs. Pulse Width



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