

- ◆ P-Channel Power MOS FET
- ◆ DMOS Structure
- ◆ Low On-State Resistance :  $0.075\Omega$  (max)
- ◆ Ultra High-Speed Switching
- ◆ SOP - 8 Package
- ◆ 2 FET Devices Built-in

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

### ■ General Description

The XP134A1275SR 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.

### ■ Features

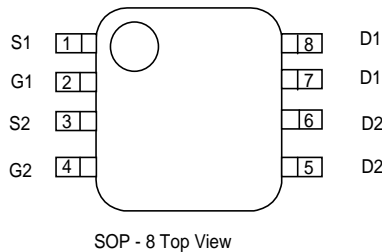
**Low on-state resistance** :  $R_{ds(on)} = 0.075\Omega$  ( $V_{gs} = -4.5V$ )  
 $R_{ds(on)} = 0.115\Omega$  ( $V_{gs} = -2.5V$ )

**Ultra high-speed switching**

**Operational Voltage** :  $-2.5V$

**High density mounting** : SOP - 8

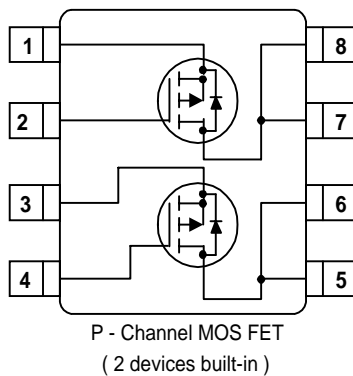
### ■ Pin Configuration



### ■ 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

$T_a = 25^\circ C$			
PARAMETER	SYMBOL	RATINGS	UNITS
Drain - Source Voltage	$V_{dss}$	- 20	V
Gate - Source Voltage	$V_{gss}$	$\pm 12$	V
Drain Current (DC)	$I_d$	- 4.5	A
Drain Current (Pulse)	$I_{dp}$	- 18	A
Reverse Drain Current	$I_{dr}$	- 4.5	A
Continuous Channel Power Dissipation (note)	$P_d$	2	W
Channel Temperature	$T_{ch}$	150	$^\circ C$
Storage Temperature	$T_{stg}$	- 55 to 150	$^\circ C$

( 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	Idss	Vds = - 20 , Vgs = 0V			- 10	μA
Gate-Source Leakage Current	Igss	Vgs = ± 12 , Vds = 0V			± 1	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 = - 2.5A , Vgs = - 4.5V		0.062	0.075	Ω
		Id = - 2.5A , Vgs = - 2.5V		0.095	0.115	Ω
Forward Transfer Admittance ( note )	Yfs	Id = - 2.5A , Vds = - 10V		7.5		S
Body Drain Diode Forward Voltage	Vf	If = - 4.5A , 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		770		pF
Output Capacitance	Coss			440		pF
Feedback Capacitance	Crss			190		pF

#### Switching characteristics

Ta=25°C

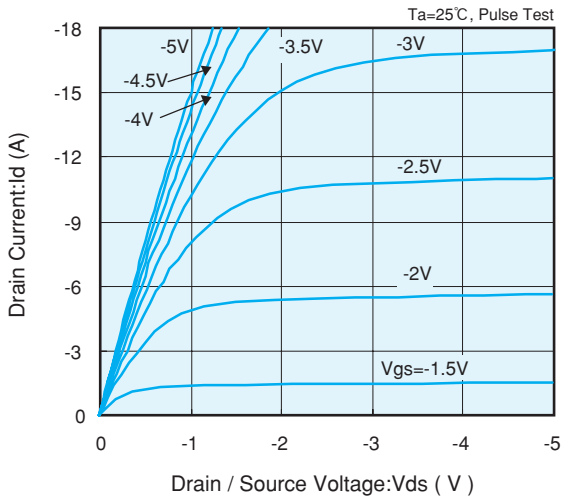
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	td ( on )	Vgs = - 5V , Id = - 2.5A Vdd = - 10V		15		ns
Rise Time	tr			20		ns
Turn-off Delay Time	td ( off )			55		ns
Fall Time	tf			30		ns

#### Thermal characteristics

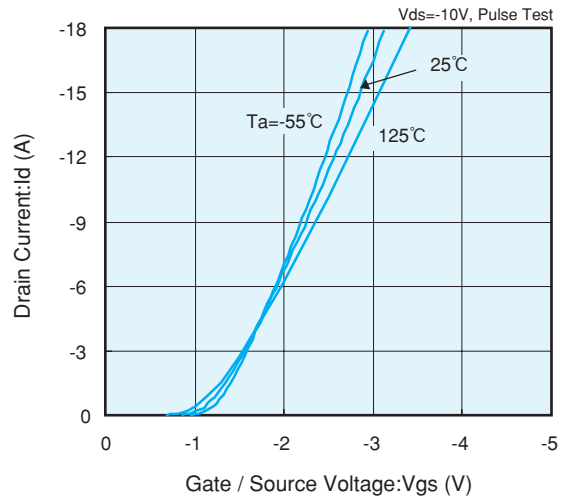
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance ( channel - surroundings )	Rth ( ch - a )	Implement on a glass epoxy resin PCB		62.5		°C / W

## Electrical Characteristics

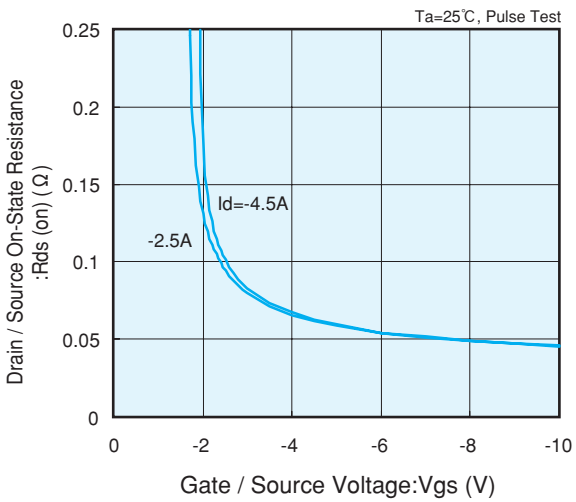
Drain Current Vs. Drain / Source Voltage



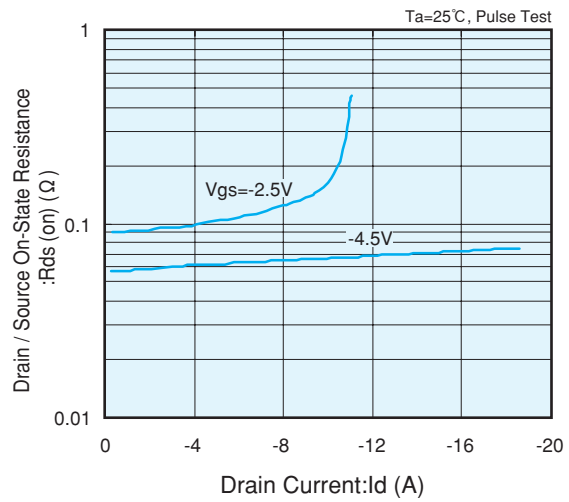
Drain Current Vs. Gate / Source Voltage



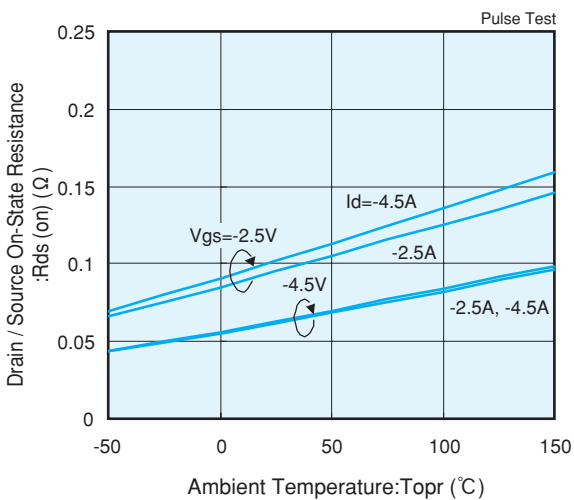
Drain / Source On-State Resistance Vs. Gate / Source Voltage



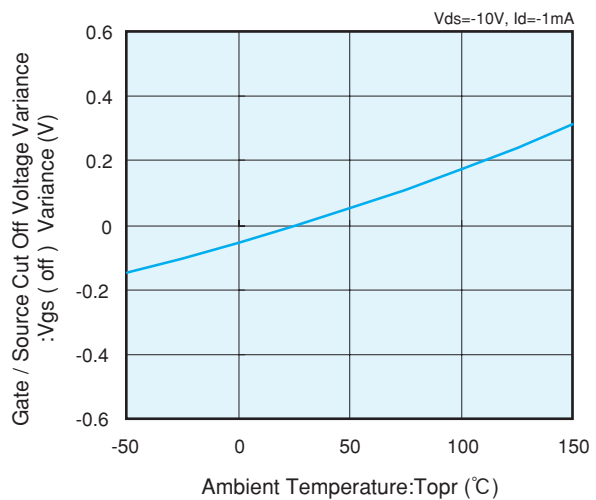
Drain / Source On-State Resistance Vs. Drain Current



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

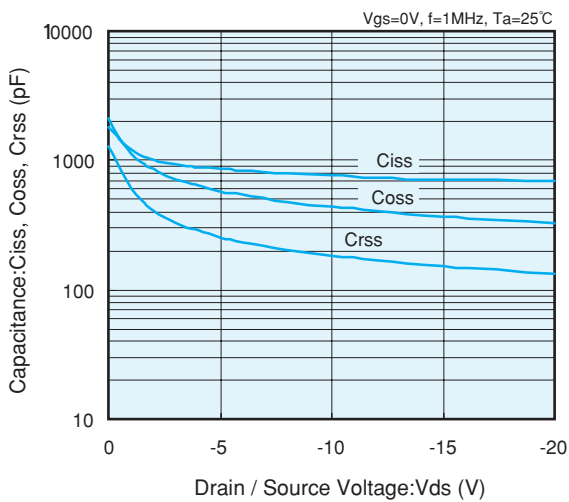


Gate / Source Cut Off Voltage Variance Vs. Ambient Temp.

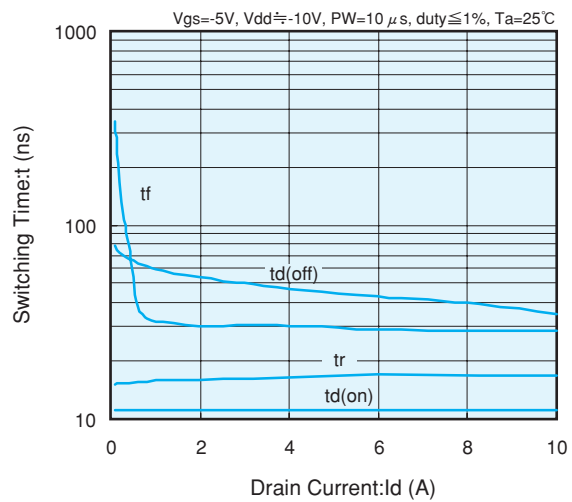


### Electrical Characteristics

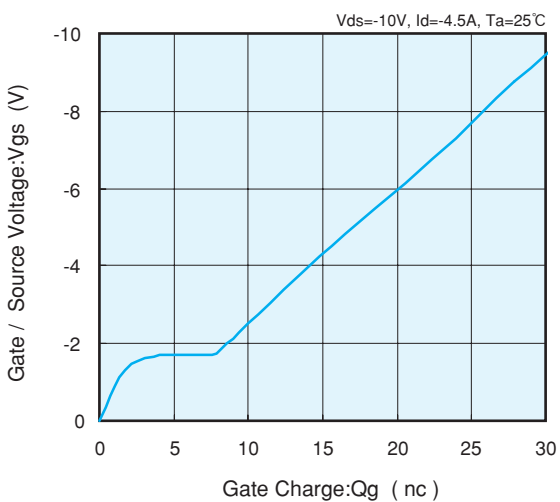
Drain / Source Voltage Vs. Capacitance



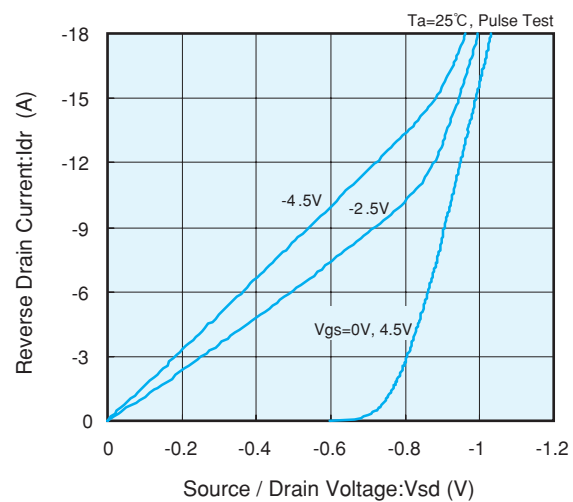
Switching Time Vs. Drain Current



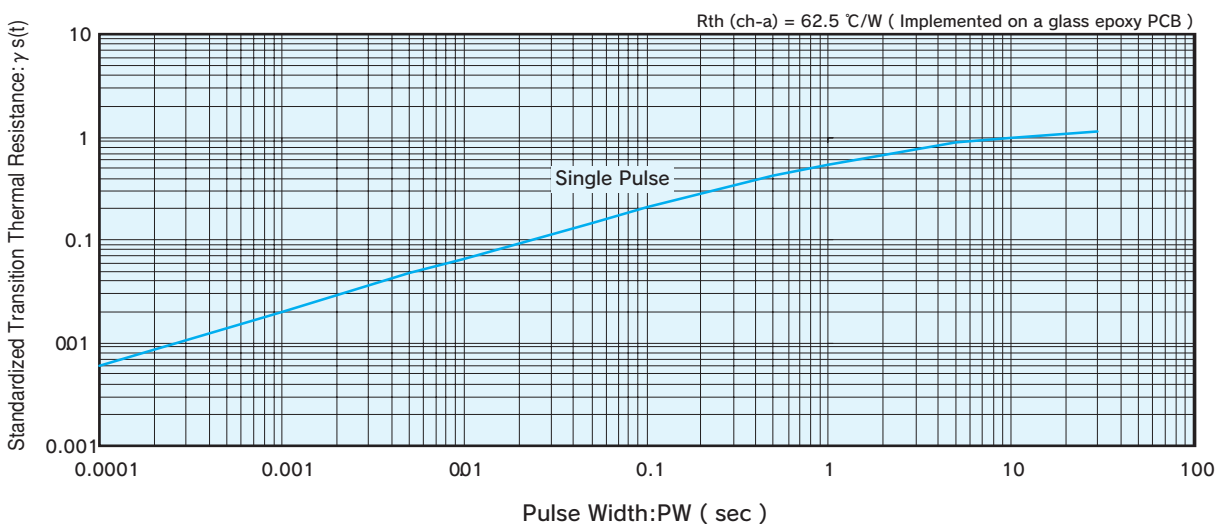
Gate / Source Voltage Vs. Gate Charge



Reverse Drain Current Vs. Source / Drain Voltage



Standardized Transition Thermal Resistance Vs. Pulse Width



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