

- ◆ P-Channel Power MOS FET
- ◆ DMOS Structure
- ◆ Low On-State Resistance : 0.033Ω (max)
- ◆ Ultra High-Speed Switching
- ◆ SOP - 8 Package

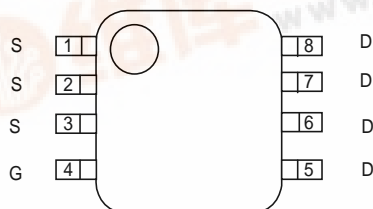
### General Description

The XP132A1635SR 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.

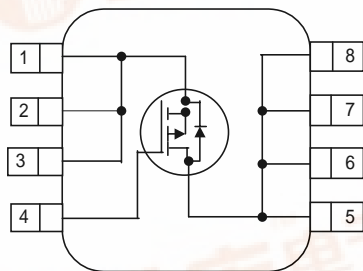
The small SOP-8 package makes high density mounting possible.

### Pin Configuration



SOP - 8 Top View

### Equivalent Circuit



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

### Applications

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

### Features

**Low on-state resistance** :  $R_{ds(on)} = 0.033\Omega$  (  $V_{gs} = -4.5V$  )  
 $R_{ds(on)} = 0.055\Omega$  (  $V_{gs} = -2.5V$  )

**Ultra high-speed switching**

**Operational Voltage** : -2.5V

**High density mounting** : SOP - 8

### Pin Assignment

PIN NUMBER	PIN NAME	FUNCTION
1 - 3	S	Source
4	G	Gate
5 - 8	D	Drain

### Absolute Maximum Ratings

Ta=25°C

PARAMETER	SYMBOL	RATINGS	UNITS
Drain - Source Voltage	Vdss	-20	V
Gate - Source Voltage	Vgss	± 12	V
Drain Current (DC)	Id	-8	A
Drain Current (Pulse)	Idp	-32	A
Reverse Drain Current	Idr	-8	A
Continuous Channel Power Dissipation (note)	Pd	2.5	W
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	-55 to 150	°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 = - 4A , Vgs = - 4.5V		0.025	0.033	Ω
		Id = - 4A , Vgs = - 2.5V		0.04	0.055	Ω
Forward Transfer Admittance ( note )	Yfs	Id = - 4A , Vds = - 10V		16		S
Body Drain Diode Forward Voltage	Vf	If = - 8A , 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		1700		pF
Output Capacitance	Coss			1000		pF
Feedback Capacitance	Crss			500		pF

#### Switching characteristics

Ta=25°C

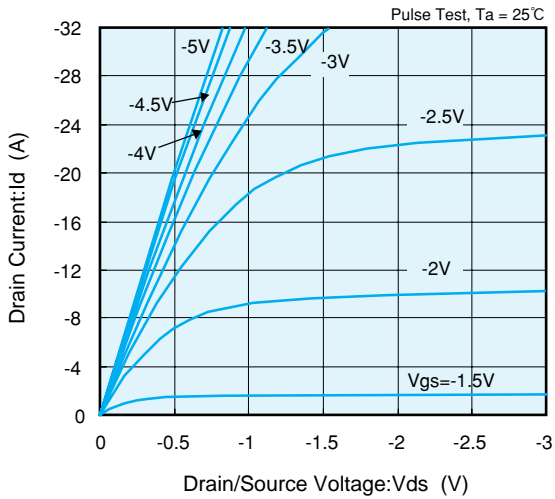
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	td ( on )	Vgs = - 5V , Id = - 4A Vdd = - 10V		15		ns
Rise Time	tr			45		ns
Turn-off Delay Time	td ( off )			70		ns
Fall Time	tf			65		ns

#### Thermal characteristics

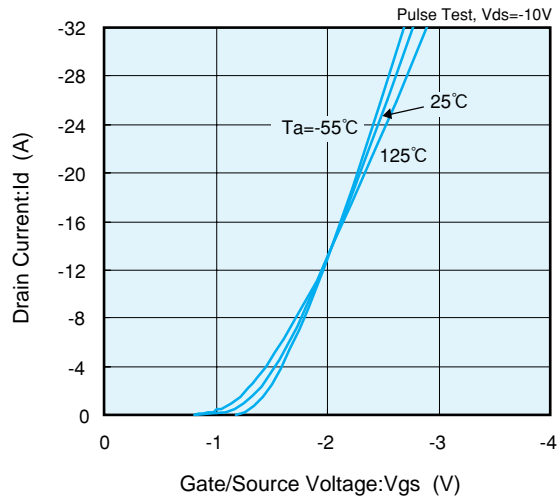
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance ( channel - surroundings )	Rth ( ch - a )	Implement on a glass epoxy resin PCB		50		°C / W

## Electrical Characteristics

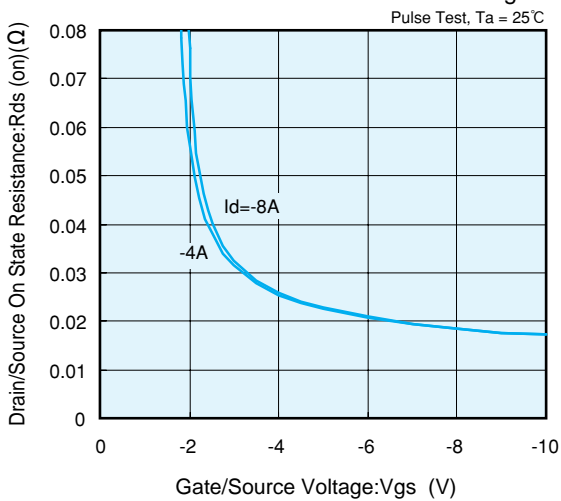
Drain Current vs. Drain/Source Voltage



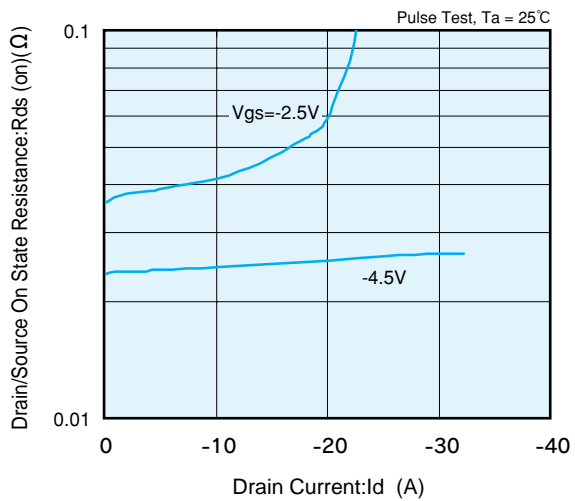
Drain Current vs. Gate/Source Voltage



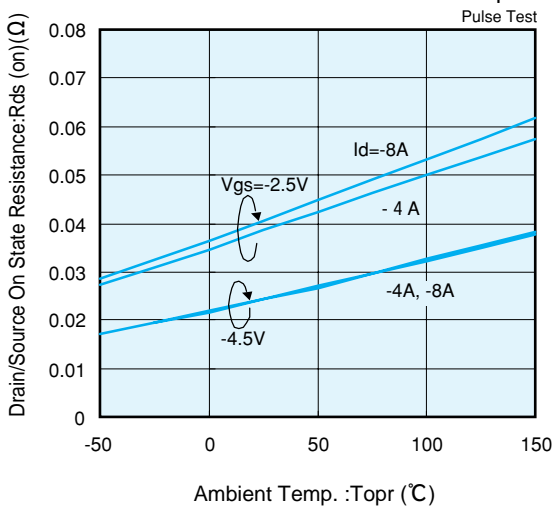
Drain/Source On-State Resistance vs. Gate/Source Voltage



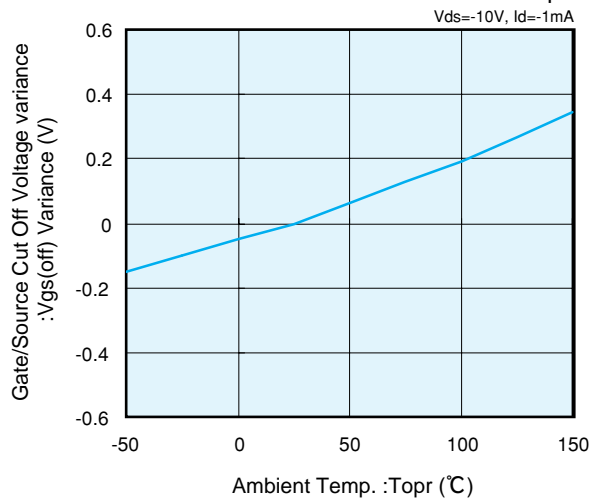
Drain/Source On-State Resistance vs. Drain Current



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

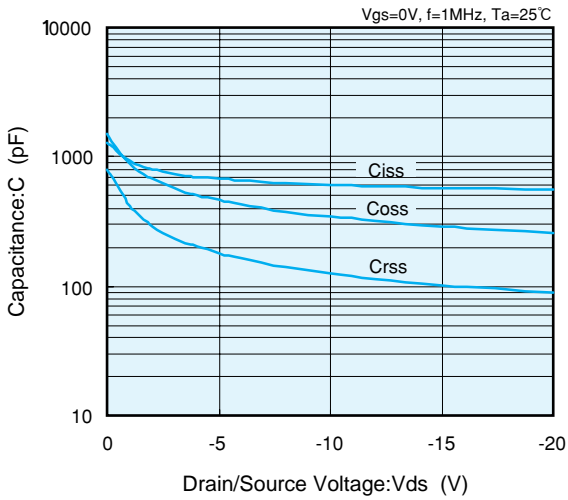


Gate / Source Cut Off Voltage Variance vs. Ambient Temp.

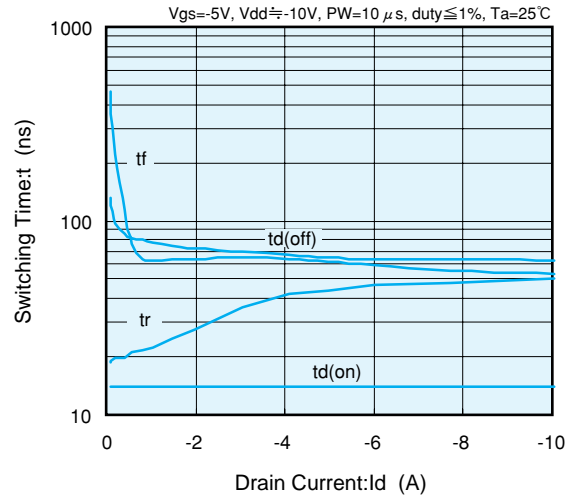


### Electrical Characteristics

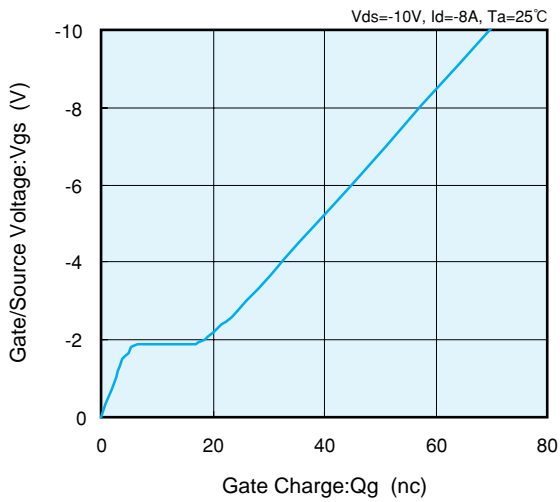
Capacitance vs. Drain/Source Voltage



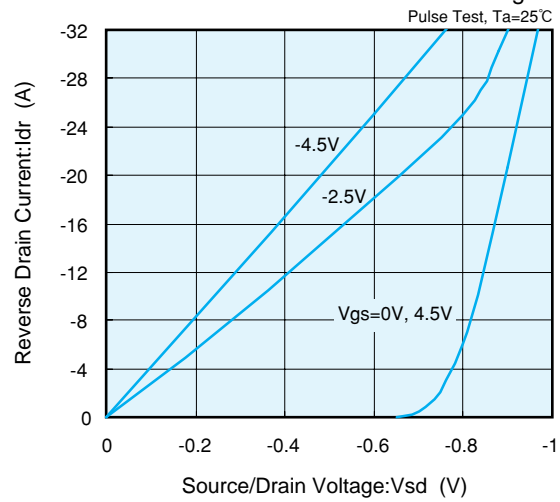
Switching Time vs. Drain Current



Gate/Source Voltage vs. Gate Charge



Reverse Drain Current vs. Source/Drain Voltage



Standardized Transition Thermal Resistance vs. Pulse Width

