

- ◆ P-Channel Power MOS FET
- ◆ DMOS Structure
- ◆ Low On-State Resistance :  $0.045\Omega$  (max)
- ◆ Ultra High-Speed Switching
- ◆ SOP - 8 Package

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

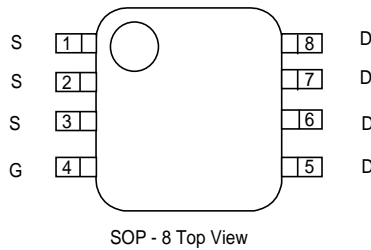
### ■ General Description

The XP132A1545SR 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.

### ■ Features

- Low on-state resistance** :  $R_{ds(on)} = 0.03\Omega$  ( $V_{gs} = -10V$ )  
 $R_{ds(on)} = 0.045\Omega$  ( $V_{gs} = -4.5V$ )
- Ultra high-speed switching**
- Operational Voltage** :  $-4.5V$
- High density mounting** : SOP - 8

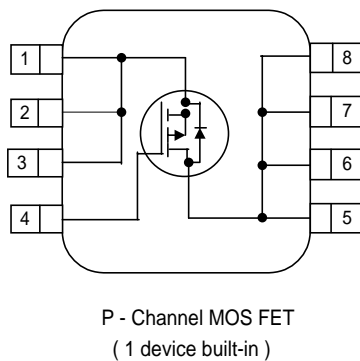
### ■ Pin Configuration



### ■ Pin Assignment

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

### ■ Equivalent Circuit



### ■ Absolute Maximum Ratings

$T_a = 25^\circ C$			
PARAMETER	SYMBOL	RATINGS	UNITS
Drain - Source Voltage	$V_{dss}$	-30	V
Gate - Source Voltage	$V_{gss}$	$\pm 20$	V
Drain Current (DC)	$I_d$	-8	A
Drain Current (Pulse)	$I_{dp}$	-32	A
Reverse Drain Current	$I_{dr}$	-8	A
Continuous Channel Power Dissipation (note)	$P_d$	2.5	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 = - 30 , Vgs = 0V			- 10	μA
Gate-Source Leakage Current	Igss	Vgs = ± 20 , Vds = 0V			± 1	μA
Gate-Source Cut-off Voltage	Vgs ( off )	Id = -1mA , Vds = - 10V	- 1.0		- 2.5	V
Drain-Source On-state Resistance ( note )	Rds ( on )	Id = - 4A , Vgs = - 10V		0.025	0.03	Ω
		Id = - 4A , Vgs = - 4.5V		0.038	0.045	Ω
Forward Transfer Admittance ( note )	Yfs	Id = - 4A , Vds = - 10V		11		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		1500		pF
Output Capacitance	Coss			1000		pF
Feedback Capacitance	Crss			500		pF

#### Switching characteristics

Ta=25°C

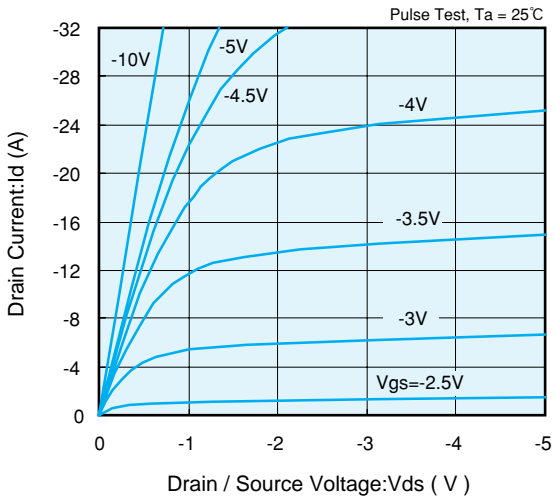
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	td ( on )	Vgs = - 5V , Id = - 4A Vdd = - 10V		20		ns
Rise Time	tr			45		ns
Turn-off Delay Time	td ( off )			40		ns
Fall Time	tf			35		ns

#### Thermal characteristics

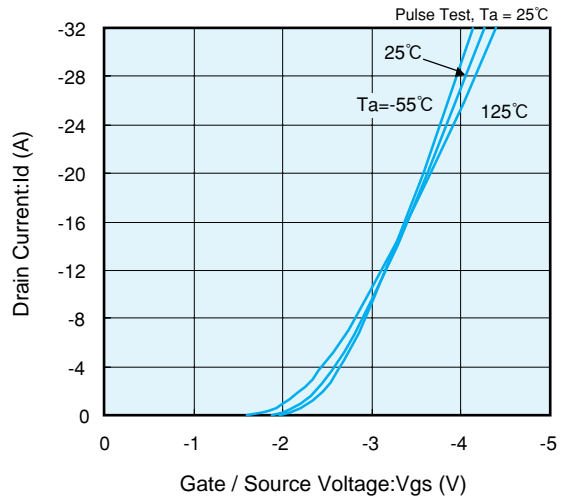
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance ( channel - surroundings )	Rth ( ch - a )	Implement on a glass epoxy resin PCB		50		°C / W

## Electrical Characteristics

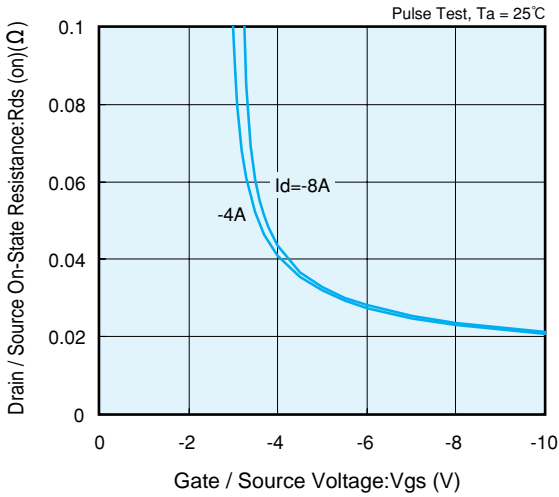
Drain Current vs. Drain / Source Voltage



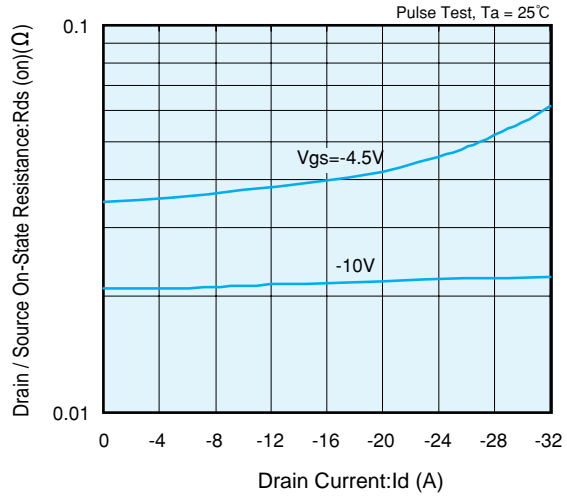
Drain Current vs. Gate / Source Voltage



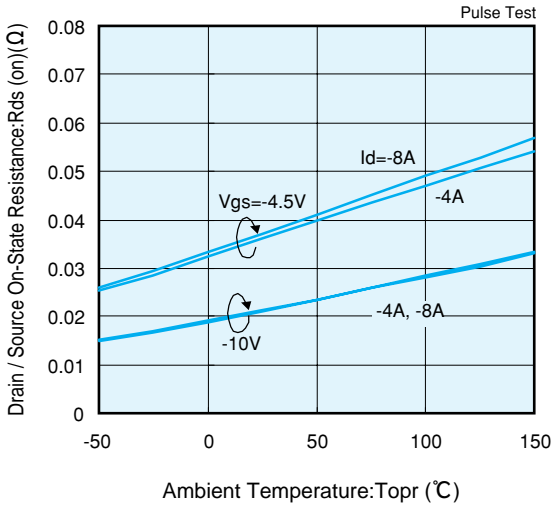
Drain / Source On-State Resistance vs. Gate / Source Voltage



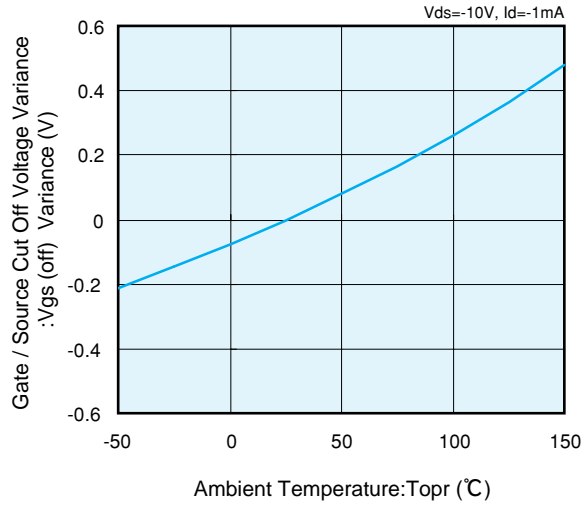
Drain / Source On-State Resistance vs. Drain Current



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

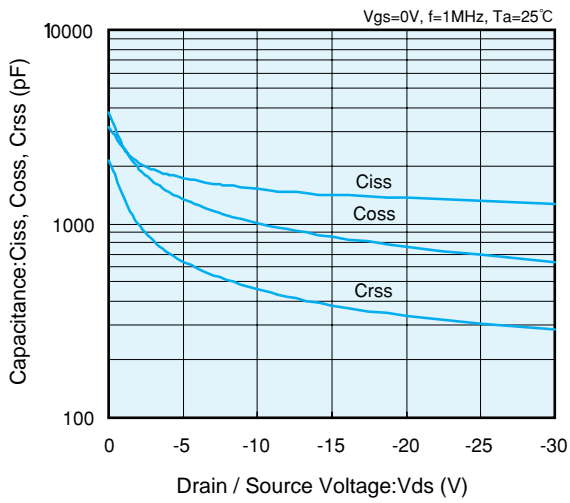


Gate / Source Cut Off Voltage Variance vs. Ambient Temp.

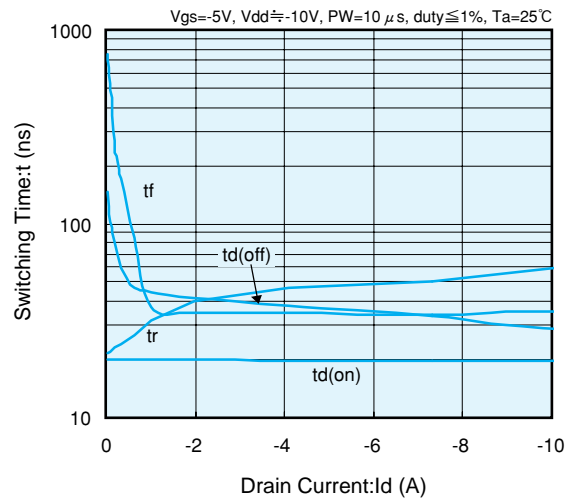


### Electrical Characteristics

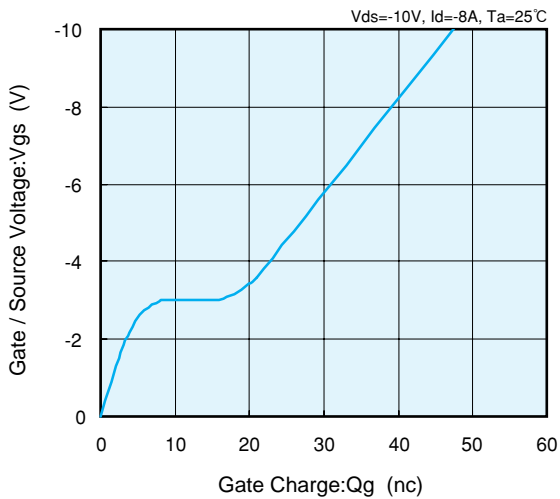
Drain / Source Voltage Vs. Capacitance



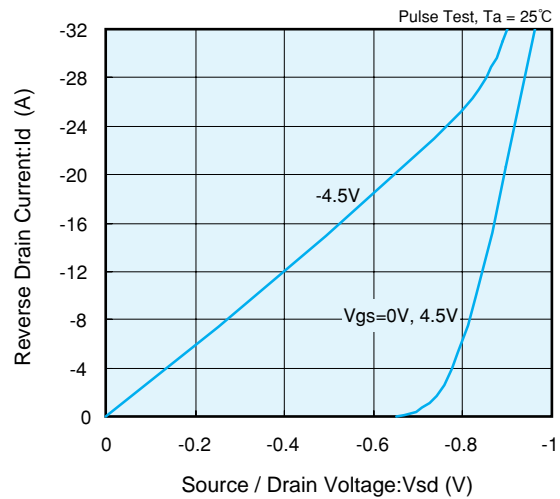
Switching Time Vs. Drain Current



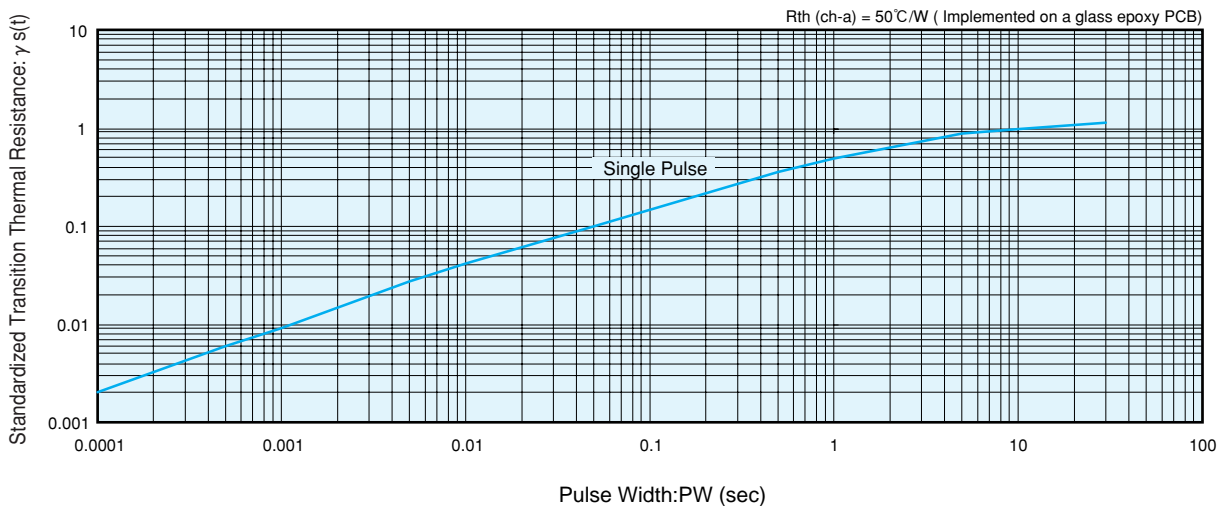
Gate / Source Voltage vs. Gate Charge



Reverse Drain Current vs. Source / Drain Voltage



Standardized Transition Thermal Resistance Vs. Pulse Width



7