

# XP132A0265SR



## Power MOS FET

- ◆P-Channel Power MOS FET
- ◆DMOS Structure
- ◆Low On-State Resistance:  $0.065\Omega$  (max)
- ◆Ultra High-Speed Switching
- ◆SOP-8 Package

### General Description

The XP132A0265SR 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.

### Applications

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

### Features

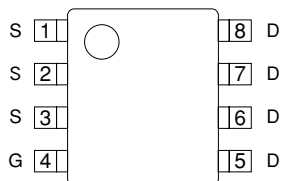
**Low on-state resistance** :  $R_{ds(on)}=0.065\Omega(V_{gs}=-5V)$   
:  $R_{ds(on)}=0.12\Omega(V_{gs}=-2.5V)$

**Ultra high-speed switching**

**Operational Voltage** : -2.5V

**High density mounting** : SOP-8

### Pin Configuration

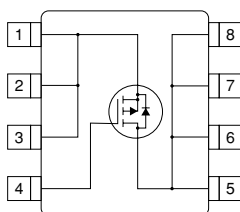


SOP-8  
(TOP VIEW)

### Pin Assignment

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

### Equivalent Circuit



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

### Absolute Maximum Ratings

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

| PARAMETER                                   | SYMBOL    | RATINGS  | UNITS            |
|---------------------------------------------|-----------|----------|------------------|
| Drain-Source Voltage                        | $V_{ds}$  | -20      | V                |
| Gate-Source Voltage                         | $V_{gs}$  | $\pm 12$ | V                |
| Drain Current (DC)                          | $I_d$     | -6       | A                |
| Drain Current (Pulse)                       | $I_{dp}$  | -20      | A                |
| Reverse Drain Current                       | $I_{dr}$  | -6       | A                |
| Continuous Channel Power Dissipation (note) | $P_d$     | 2.5      | 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                   | 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 |       |       | V     |
| Drain-Source On-state Resistance (note) | Rds(on)  | Id=-3A, Vgs=-5V   |      | 0.055 | 0.065 | Ω     |
|                                         |          | Id=-3A, Vgs=-2.5V |      | 0.09  | 0.12  | Ω     |
| Forward Transfer Admittance (note)      | Yfs      | Id=-3A, Vds=-10V  |      | 8     |       | S     |
| Body Drain Diode Forward Voltage        | Vf       | If=-6A, 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<br>f=1MHz |     | 1100 |     | pF    |
| Output Capacitance   | Coss   |                            |     | 600  |     | pF    |
| Feedback Capacitance | Crss   |                            |     | 220  |     | pF    |

### Switching Characteristics

Ta=25°C

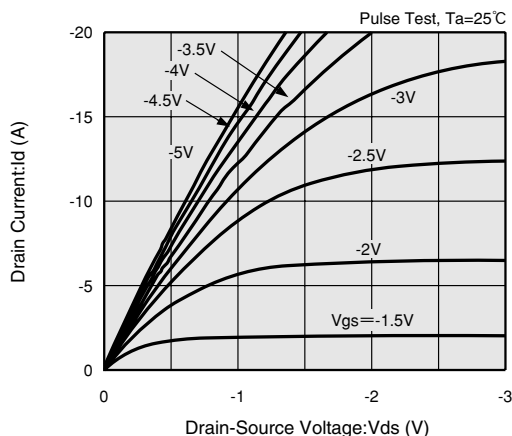
| PARAMETER           | SYMBOL   | CONDITIONS                  | MIN | TYP | MAX | UNITS |
|---------------------|----------|-----------------------------|-----|-----|-----|-------|
| Turn-on Delay Time  | td (on)  | Vgs=-5V, Id=-3A<br>Vdd=-10V |     | 15  |     | ns    |
| Rise Time           | tr       |                             |     | 15  |     | ns    |
| Turn-off Delay Time | td (off) |                             |     | 50  |     | ns    |
| Fall Time           | tf       |                             |     | 30  |     | ns    |

### Thermal Characteristics

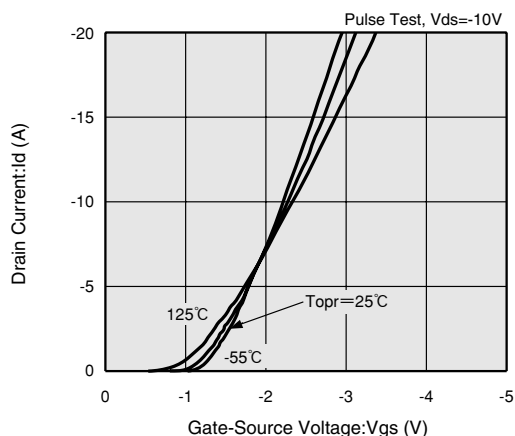
| PARAMETER                             | SYMBOL     | CONDITIONS                           | MIN | TYP | MAX | UNITS |
|---------------------------------------|------------|--------------------------------------|-----|-----|-----|-------|
| Thermal Resistance (channel-ambience) | Rth (ch-a) | Implement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

## Typical Performance Characteristics

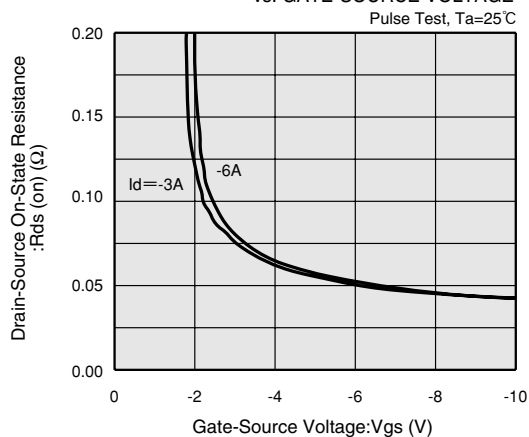
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



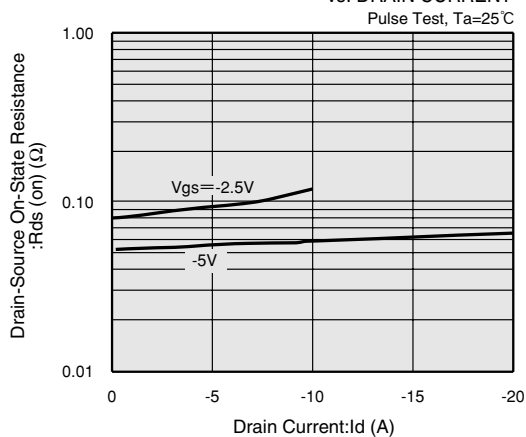
DRAIN CURRENT vs. GATE-SOURCE VOLTAGE



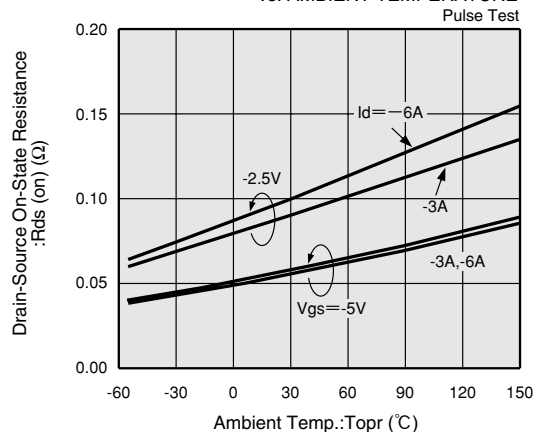
DRAIN-SOURCE ON-STATE RESISTANCE vs. GATE-SOURCE VOLTAGE



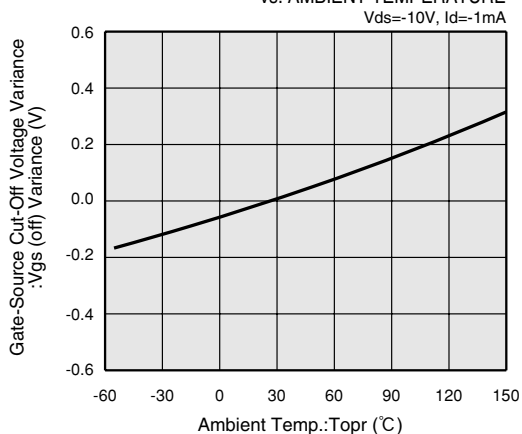
DRAIN-SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



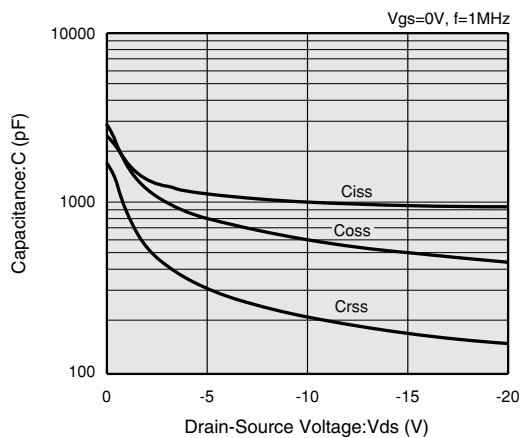
DRAIN-SOURCE ON-STATE RESISTANCE vs. AMBIENT TEMPERATURE



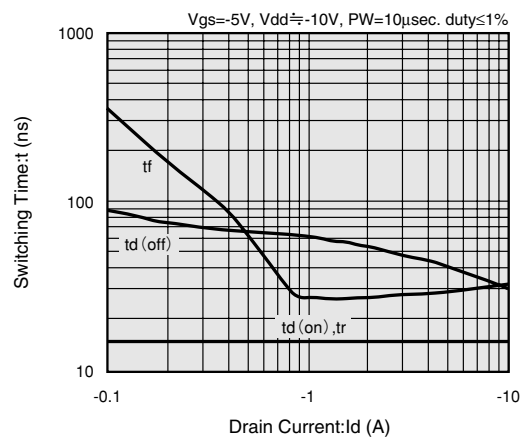
GATE-SOURCE CUT-OFF VOLTAGE VARIANCE vs. AMBIENT TEMPERATURE



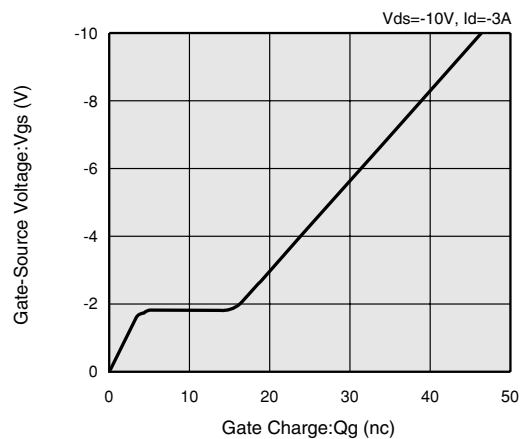
CAPACITANCE vs. DRAIN-SOURCE VOLTAGE



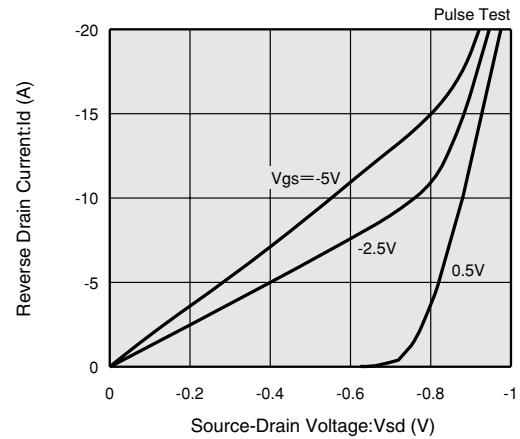
SWITCHING TIME vs. DRAIN CURRENT



GATE-SOURCE VOLTAGE vs. GATE CHARGE



REVERSE DRAIN CURRENT vs. SOURCE-DRAIN VOLTAGE



STANDARDIZED TRANSITION THERMAL RESISTANCE vs. PULSE WIDTH

