



### General Description

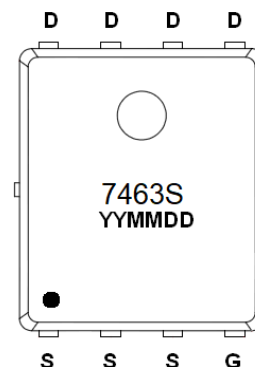
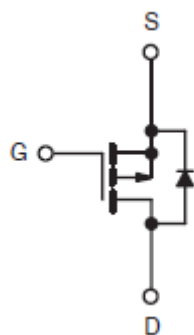
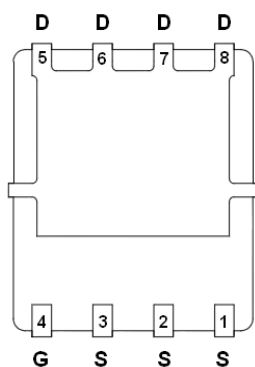
AFP7463S, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

### Features

- $I_D = -15A, R_{DS(ON)} = 12m\Omega @ V_{GS} = -10V$
- $I_D = -10A, R_{DS(ON)} = 15m\Omega @ V_{GS} = -4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- DFN5X6-8L package design

### Pin Description ( DFN5X6-8L )



### Application

- Load Switch
- Adaptor Switch
- Notebook PC

### Pin Define

| Pin | Symbol | Description |
|-----|--------|-------------|
| 4   | G      | Gate        |
| 1~3 | S      | Source      |
| 5~8 | D      | Drain       |

### Ordering Information

| Part Ordering No. | Part Marking | Package   | Unit        | Quantity |
|-------------------|--------------|-----------|-------------|----------|
| AFP7463SFN568RG   | 7463S        | DFN5X6-8L | Tape & Reel | 2500 EA  |

※ 7463S : Parts Code

※ YYMMDD : Date code

※ AFP7463SFN568RG : 13" Tape & Reel ; Pb- Free ; Halogen- Free



### Absolute Maximum Ratings

( $T_A=25^\circ\text{C}$  Unless otherwise noted)

| Parameter   | Symbol                | Value                  | Unit             |
|---|-----------------------|------------------------|------------------|
| Drain-Source Voltage                                | $V_{DSS}$             | -40                    | V                |
| Gate –Source Voltage                                | $V_{GSS}$             | $\pm 20$               | V                |
| Continuous Drain Current( $T_J=150^\circ\text{C}$ ) | $I_{DSM}$             | $T_A=25^\circ\text{C}$ | -17              |
|   |                       | $T_A=70^\circ\text{C}$ | -14              |
| Pulsed Drain Current                                | $I_{DM}$              | -65                    | A                |
| Continuous Source Current(Diode Conduction)         | $I_S$                 | -4.0                   |                  |
| Single Pulse Avalanche Current                      | $I_{AS}$              | -25                    |                  |
| Power Dissipation                                   | $P_{DSM}$             | $T_A=25^\circ\text{C}$ | 4.2              |
|   |                       | $T_A=75^\circ\text{C}$ | 2.7              |
| Operating Junction Temperature                      | $T_J$                 | 150                    | $^\circ\text{C}$ |
| Storage Temperature Range                           | $T_{STG}$             | -55/150                | $^\circ\text{C}$ |
| Thermal Resistance-Junction to Ambient              | $t \leq 10 \text{ s}$ | $R_{\theta JA}$        | 20               |
| Thermal Resistance-Junction to Case                 | Steady-State          | $R_{\theta JC}$        | 2.1              |

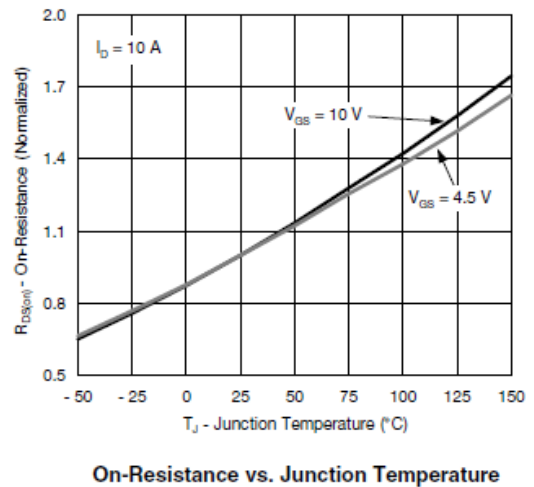
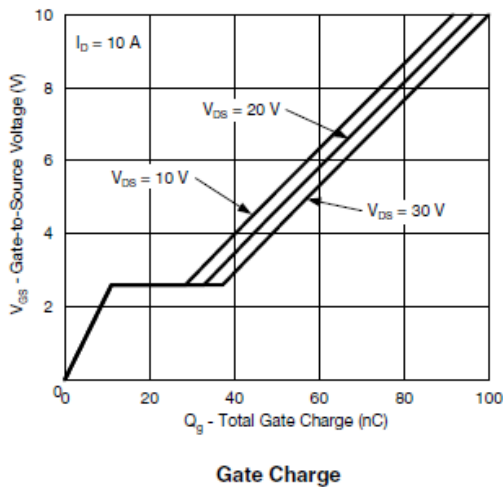
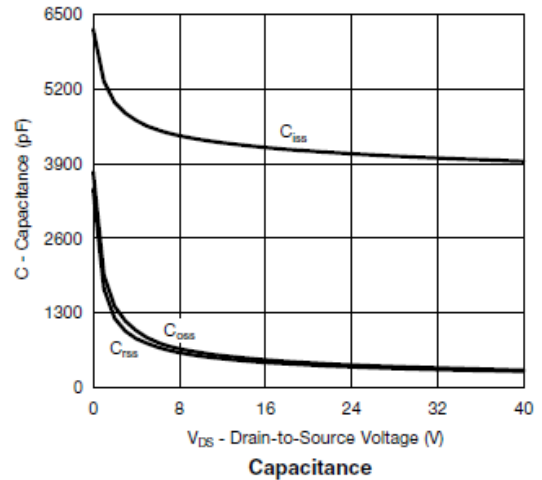
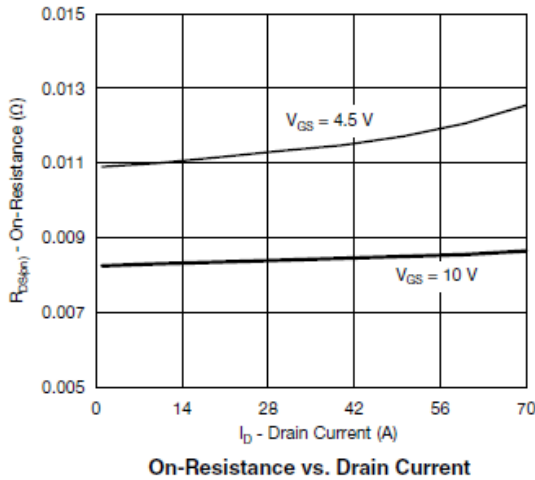
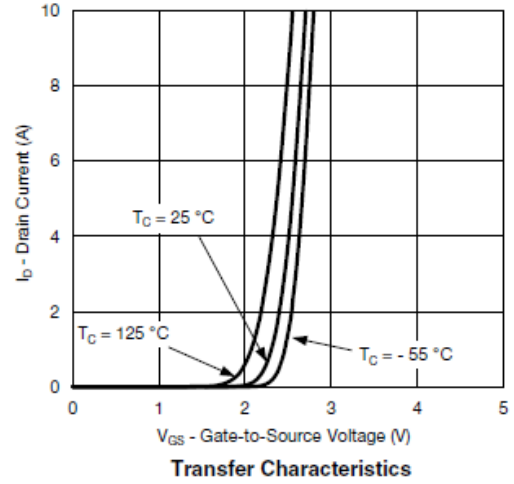
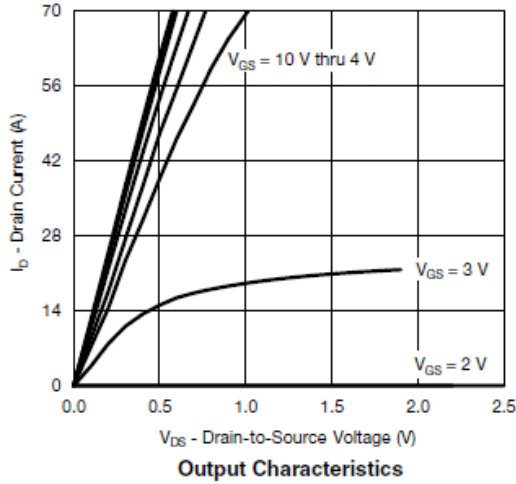
### Electrical Characteristics

( $T_A=25^\circ\text{C}$  Unless otherwise noted)

| Parameter                       | Symbol        | Conditions  | Min. | Typ  | Max.      | Unit       |
|---------------------------------|---------------|---|------|------|-----------|------------|
| <b>Static</b>                   |               |   |      |      |           |            |
| Drain-Source Breakdown Voltage  | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D = -250\mu\text{A}$  | -40  |      |           | V          |
| Gate Threshold Voltage          | $V_{GS(th)}$  | $V_{DS}=V_{GS}, I_D = -250\mu\text{A}$  | -1.0 |      | -2.0      |            |
| Gate Leakage Current            | $I_{GSS}$     | $V_{DS}=0V, V_{GS} = \pm 20V$   |      |      | $\pm 100$ | nA         |
| Zero Gate Voltage Drain Current | $I_{DSS}$     | $V_{DS} = -32V, V_{GS}=0V$  |      |      | -1        | uA         |
|                                 |               | $V_{DS} = -32V, V_{GS}=0V$<br>$T_J=85^\circ\text{C}$                              |      |      | -20       |            |
| On-State Drain Current          | $I_{D(on)}$   | $V_{DS} \geq -10V, V_{GS} = -10V$   | -25  |      |           | A          |
| Drain-Source On-Resistance      | $R_{DS(on)}$  | $V_{GS} = -10V, I_D = -15A$   |      | 10   | 12        | m $\Omega$ |
|                                 |               | $V_{GS} = -4.5V, I_D = -10A$  |      | 13   | 15        |            |
| Forward Transconductance        | $g_{FS}$      | $V_{DS} = -10V, I_D = -15A$   |      | 40   |           | S          |
| Diode Forward Voltage           | $V_{SD}$      | $I_S = -1A, V_{GS}=0V$  |      | -0.8 | -1.3      | V          |
| <b>Dynamic</b>                  |               |   |      |      |           |            |
| Total Gate Charge               | $Q_g$         | $V_{DS} = -20V, V_{GS} = -4.5V$<br>$I_D = -10A$                                   |      | 45   | 90        | nC         |
| Gate-Source Charge              | $Q_{gs}$      |   |      | 10   |           |            |
| Gate-Drain Charge               | $Q_{gd}$      |   |      | 20   |           |            |
| Input Capacitance               | $C_{iss}$     | $V_{DS} = -20V, V_{GS} = 0V$<br>$f = 1\text{MHz}$                                 |      | 4150 |           | pF         |
| Output Capacitance              | $C_{oss}$     |   |      | 435  |           |            |
| Reverse Transfer Capacitance    | $C_{rss}$     |   |      | 400  |           |            |
| Turn-On Time                    | $t_{d(on)}$   | $V_{DD} = -20V, R_L = 2\Omega$<br>$I_D = -10A, V_{GEN} = -10V$<br>$R_G = 1\Omega$ |      | 15   | 30        | ns         |
|                                 | $t_r$         |   |      | 15   | 30        |            |
| Turn-Off Time                   | $t_{d(off)}$  |   |      | 55   | 110       |            |
|                                 | $t_f$         |   |      | 12   | 25        |            |

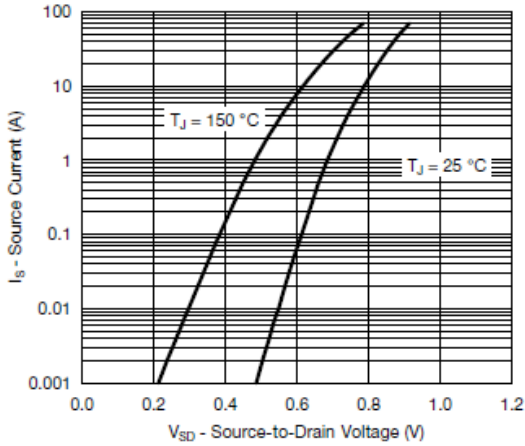


## Typical Characteristics

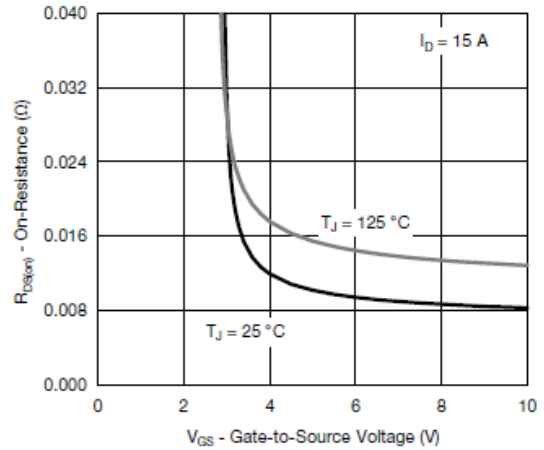




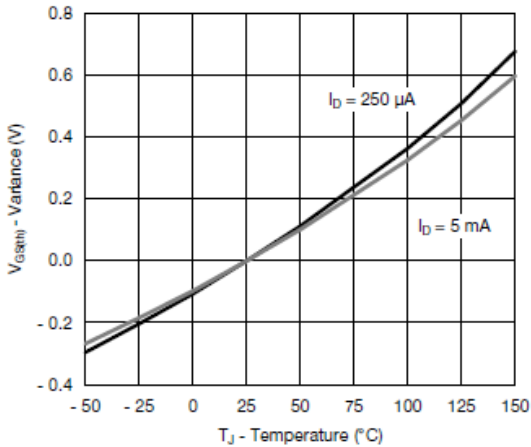
## Typical Characteristics



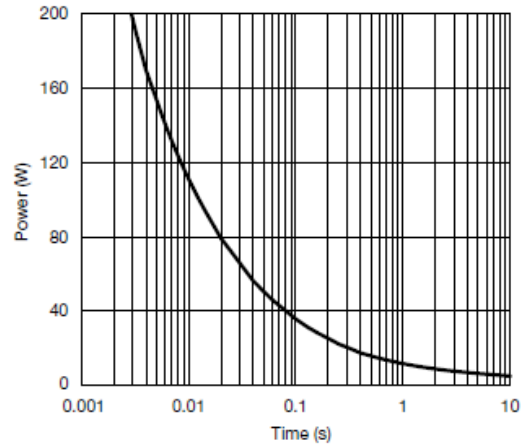
Source-Drain Diode Forward Voltage



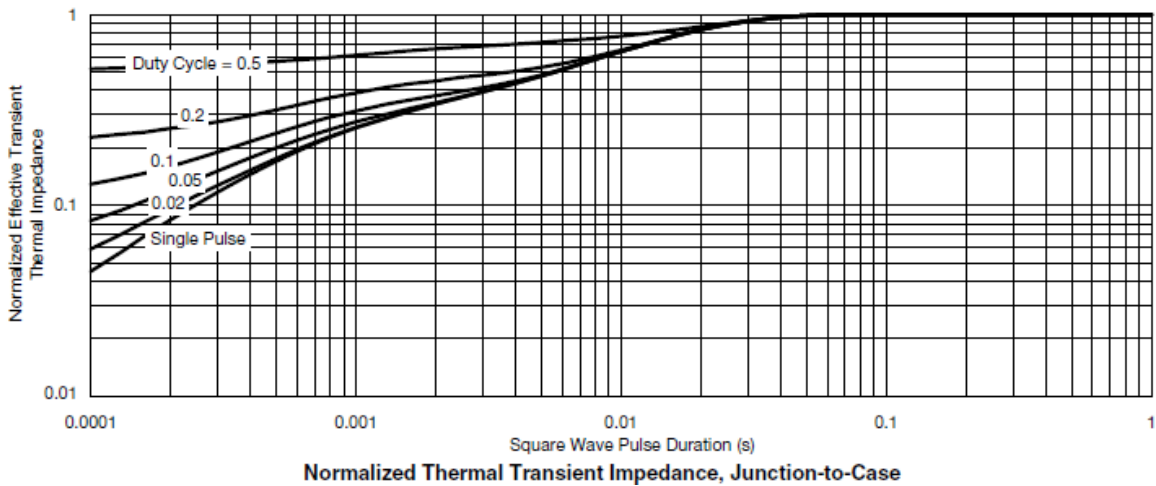
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case



**Typical Characteristics**

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

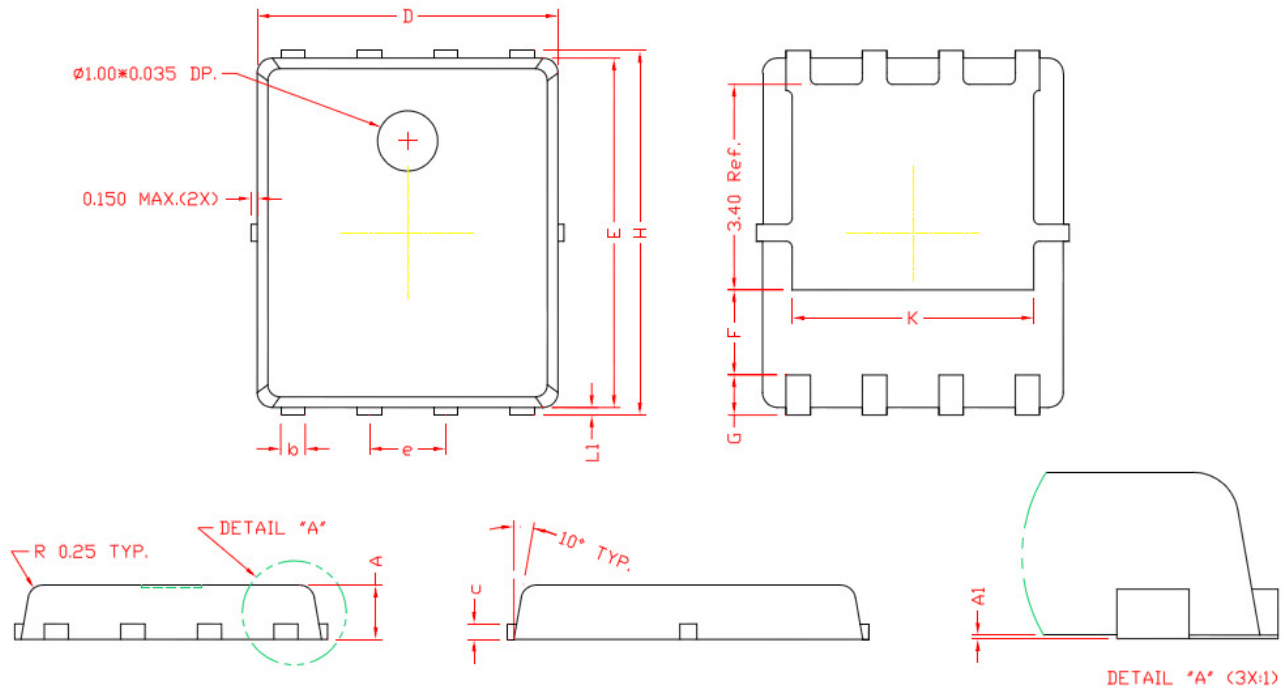


Unclamped Inductive Switching Test Circuit & Waveforms





**Package Information ( DFN5X6-8L )**



**DIMENSIONS**

| REF. | Millimeters |      | REF. | Millimeters |      |
|------|-------------|------|------|-------------|------|
|      | Min.        | Max. |      | Min.        | Max. |
| A    | 0.80        | 1.00 | E    | 5.70        | 5.90 |
| A1   | 0.00        | 0.05 | e    | 1.27 BSC.   |      |
| b    | 0.35        | 0.49 | H    | 5.95        | 6.20 |
| c    | 0.254 Ref.  |      | L1   | 0.10        | 0.18 |
| D    | 4.90        | 5.10 | G    | 0.60 Ref.   |      |
| F    | 1.40 Ref.   |      | K    | 4.00 Ref.   |      |

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