



N-Channel Silicon MOSFET

# ATP212 — General-Purpose Switching Device Applications

## Features

- Low ON-resistance.
- Large current.
- Slim package.
- 4V drive.
- Halogen free compliance.

## Specifications

Absolute Maximum Ratings at  $T_a=25^{\circ}\text{C}$ 

| Parameter                                 | Symbol    | Conditions                                      | Ratings     | Unit               |
|-------------------------------------------|-----------|-------------------------------------------------|-------------|--------------------|
| Drain-to-Source Voltage                   | $V_{DS}$  |                                                 | 60          | V                  |
| Gate-to-Source Voltage                    | $V_{GS}$  |                                                 | $\pm 20$    | V                  |
| Drain Current (DC)                        | $I_D$     |                                                 | 35          | A                  |
| Drain Current ( $PW \leq 10\mu\text{s}$ ) | $I_{DP}$  | $PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$ | 105         | A                  |
| Allowable Power Dissipation               | $P_D$     | $T_c=25^{\circ}\text{C}$                        | 40          | W                  |
| Channel Temperature                       | $T_{ch}$  |                                                 | 150         | $^{\circ}\text{C}$ |
| Storage Temperature                       | $T_{stg}$ |                                                 | -55 to +150 | $^{\circ}\text{C}$ |
| Avalanche Energy (Single Pulse) *1        | $E_{AS}$  |                                                 | 19          | mJ                 |
| Avalanche Current *2                      | $I_{AV}$  |                                                 | 18          | A                  |

Note : \*1  $V_{DD}=10\text{V}$ ,  $L=100\mu\text{H}$ ,  $I_{AV}=18\text{A}$ \*2  $L \leq 100\mu\text{H}$ , Single pulseElectrical Characteristics at  $T_a=25^{\circ}\text{C}$ 

| Parameter                         | Symbol        | Conditions                                   | Ratings |     |          | Unit          |
|-----------------------------------|---------------|----------------------------------------------|---------|-----|----------|---------------|
|                                   |               |                                              | min     | typ | max      |               |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=1\text{mA}$ , $V_{GS}=0\text{V}$        | 60      |     |          | V             |
| Zero-Gate Voltage Drain Current   | $I_{DSS}$     | $V_{DS}=60\text{V}$ , $V_{GS}=0\text{V}$     |         |     | 1        | $\mu\text{A}$ |
| Gate-to-Source Leakage Current    | $I_{GSS}$     | $V_{GS}=\pm 16\text{V}$ , $V_{DS}=0\text{V}$ |         |     | $\pm 10$ | $\mu\text{A}$ |

Marking : ATP212

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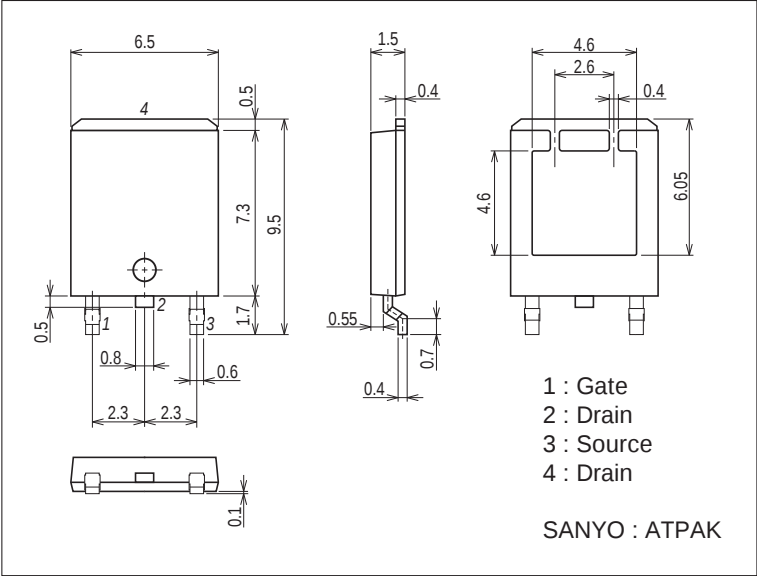
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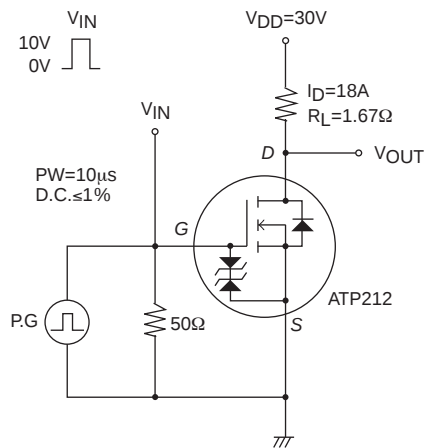
| Parameter                                  | Symbol        | Conditions                        | Ratings |      |     | Unit |
|--------------------------------------------|---------------|-----------------------------------|---------|------|-----|------|
|                                            |               |                                   | min     | typ  | max |      |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS}=10V, I_D=1mA$             | 1.2     |      | 2.6 | V    |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS}=10V, I_D=18A$             |         | 35   |     | S    |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=18A, V_{GS}=10V$             |         | 17   | 23  | mΩ   |
|                                            | $R_{DS(on)2}$ | $I_D=9A, V_{GS}=4.5V$             |         | 23   | 33  | mΩ   |
|                                            | $R_{DS(on)3}$ | $I_D=5A, V_{GS}=4V$               |         | 25   | 37  | mΩ   |
| Input Capacitance                          | $C_{iss}$     | $V_{DS}=20V, f=1MHz$              |         | 1820 |     | pF   |
| Output Capacitance                         | $C_{oss}$     | $V_{DS}=20V, f=1MHz$              |         | 150  |     | pF   |
| Reverse Transfer Capacitance               | $C_{rss}$     | $V_{DS}=20V, f=1MHz$              |         | 100  |     | pF   |
| Turn-ON Delay Time                         | $t_d(on)$     | See specified Test Circuit.       |         | 16   |     | ns   |
| Rise Time                                  | $t_r$         | See specified Test Circuit.       |         | 110  |     | ns   |
| Turn-OFF Delay Time                        | $t_d(off)$    | See specified Test Circuit.       |         | 125  |     | ns   |
| Fall Time                                  | $t_f$         | See specified Test Circuit.       |         | 87   |     | ns   |
| Total Gate Charge                          | $Q_g$         | $V_{DS}=30V, V_{GS}=10V, I_D=35A$ |         | 34.5 |     | nC   |
| Gate-to-Source Charge                      | $Q_{gs}$      | $V_{DS}=30V, V_{GS}=10V, I_D=35A$ |         | 6.5  |     | nC   |
| Gate-to-Drain "Miller" Charge              | $Q_{gd}$      | $V_{DS}=30V, V_{GS}=10V, I_D=35A$ |         | 6.8  |     | nC   |
| Diode Forward Voltage                      | $V_{SD}$      | $I_S=35A, V_{GS}=0V$              |         | 0.96 | 1.2 | V    |

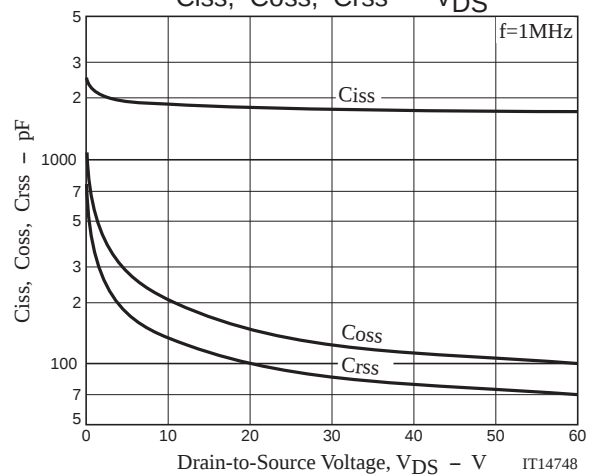
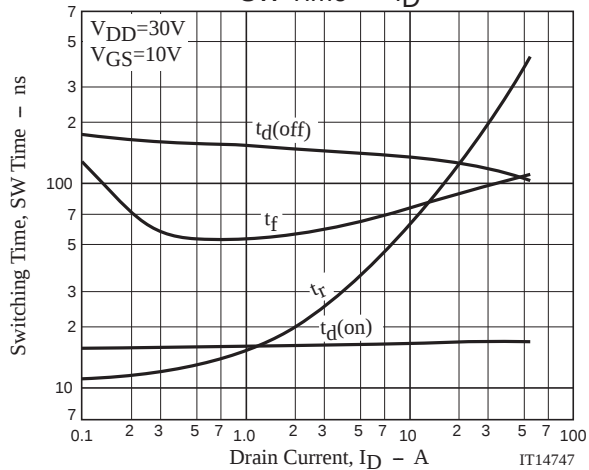
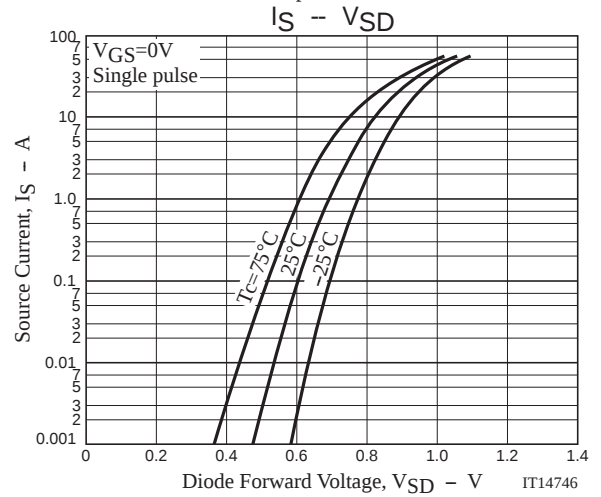
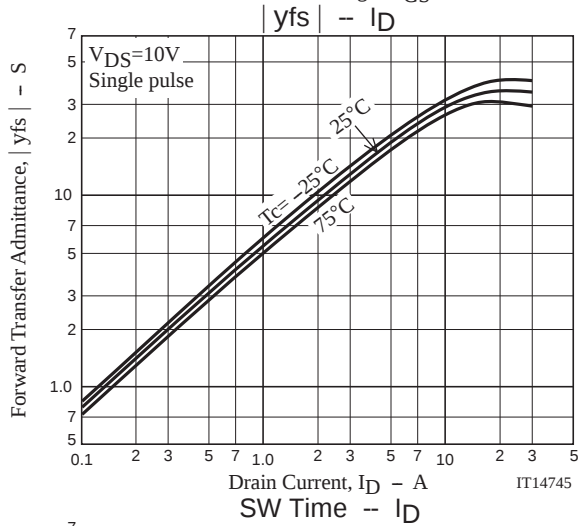
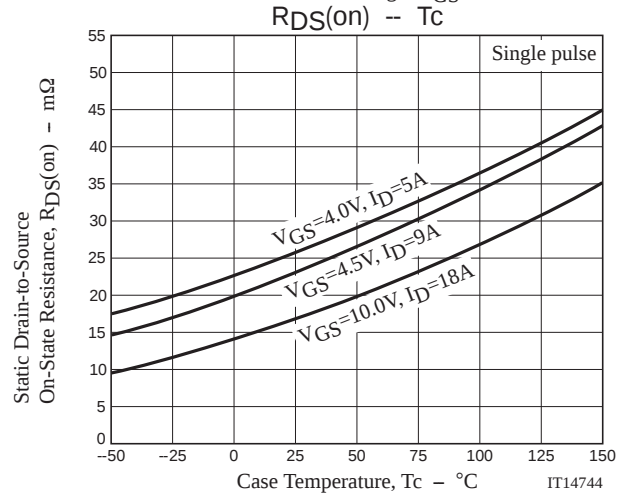
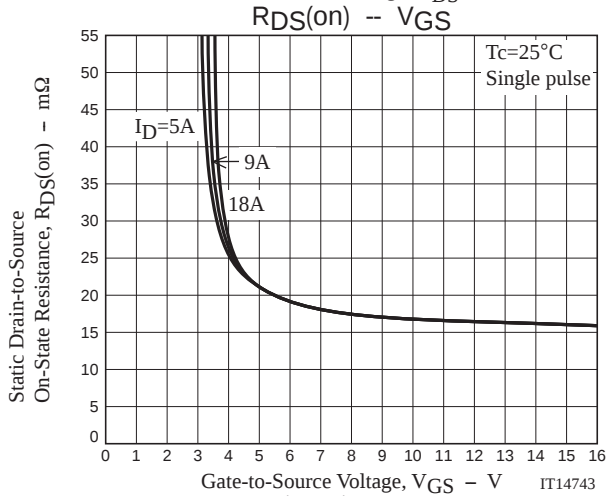
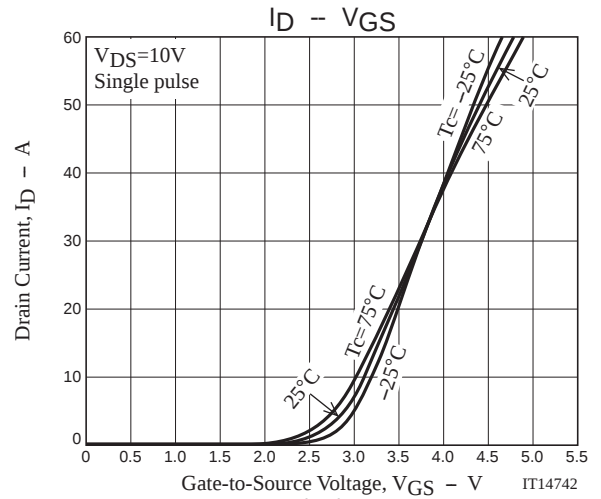
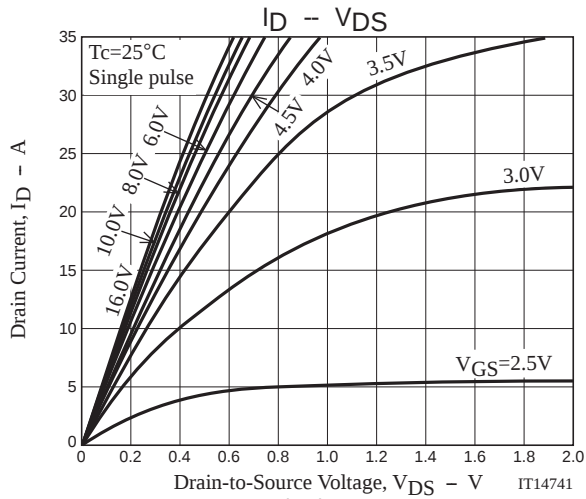
Package Dimensions

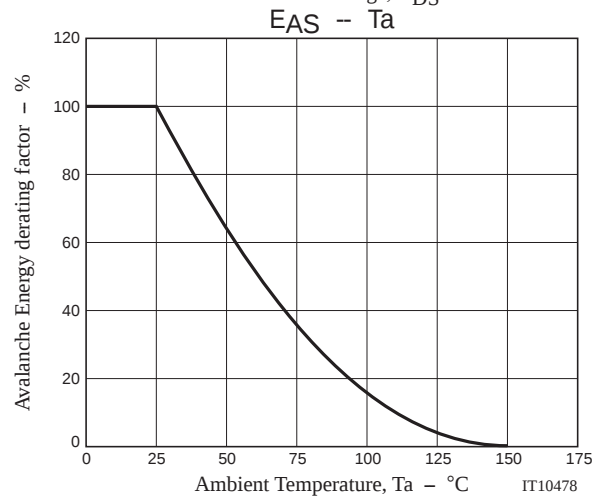
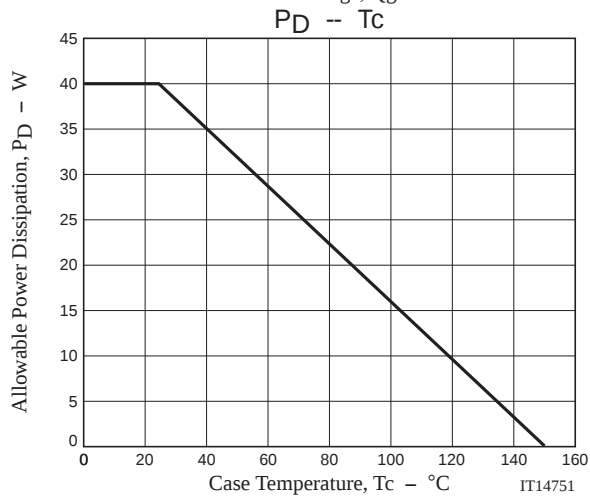
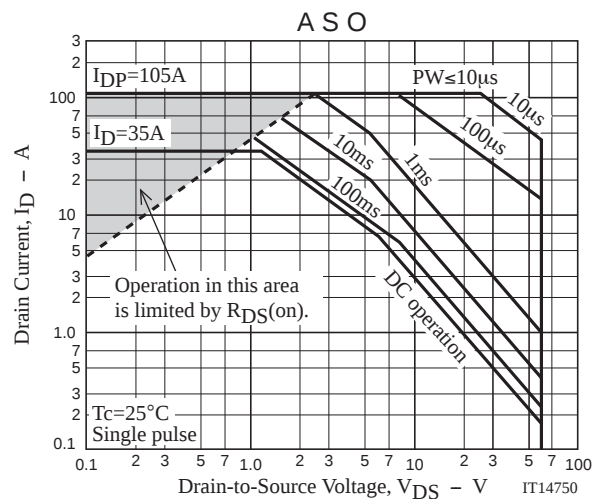
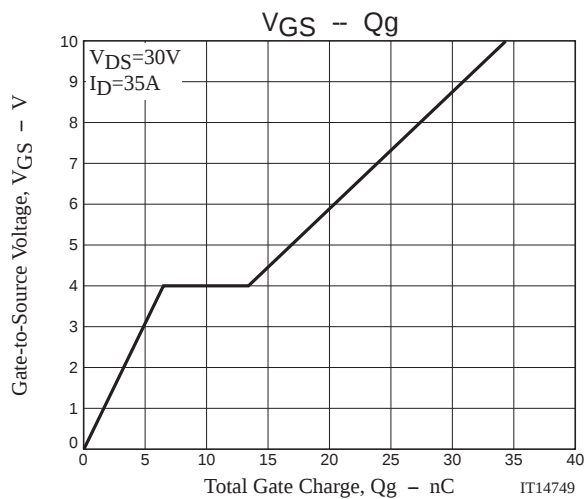
unit : mm (typ)  
7057-001



Switching Time Test Circuit







Note on usage : Since the ATP212 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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