



# FW344A

## Power MOSFET

30V, 4.5A, 64mΩ, -30V, -3.5A, 102mΩ, Complementary Dual SOIC8

ON Semiconductor®

<http://onsemi.com>

### Features

- ON-resistance Nch :  $R_{DS(on)1}=49m\Omega$ (typ.)  
Pch :  $R_{DS(on)1}=78m\Omega$ (typ.)
- 4V drive
- Halogen free compliance
- Nch+Pch MOSFET

### Specifications

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

| Parameter                           | Symbol    | Conditions   | N-channel   | P-channel | Unit       |
|-------------------------------------|-----------|--|-------------|-----------|------------|
| Drain-to-Source Voltage             | $V_{DSS}$ |  | 30          | -30       | V          |
| Gate-to-Source Voltage              | $V_{GSS}$ |  | $\pm 20$    | $\pm 20$  | V          |
| Drain Current (DC)                  | $I_D$     |  | 4.5         | -3.5      | A          |
| Drain Current ( $PW \leq 10\mu s$ ) | $I_{DP}$  | Duty cycle $\leq 1\%$  | 5           | -4        | A          |
| Drain Current ( $PW \leq 10\mu s$ ) | $I_{DP}$  | Duty cycle $\leq 1\%$  | 18          | -14       | A          |
| Allowable Power Dissipation         | $P_D$     | When mounted on ceramic substrate (2000mm <sup>2</sup> x0.8mm) 1unit | 1.4         |           | W          |
| Total Dissipation                   | $P_T$     | When mounted on ceramic substrate (2000mm <sup>2</sup> x0.8mm)       | 1.7         |           | W          |
| Channel Temperature                 | $T_{ch}$  |  | 150         |           | $^\circ C$ |
| Storage Temperature                 | $T_{stg}$ |  | -55 to +150 |           | $^\circ C$ |

This product is designed to "ESD immunity < 200V\*\*", so please take care when handling.

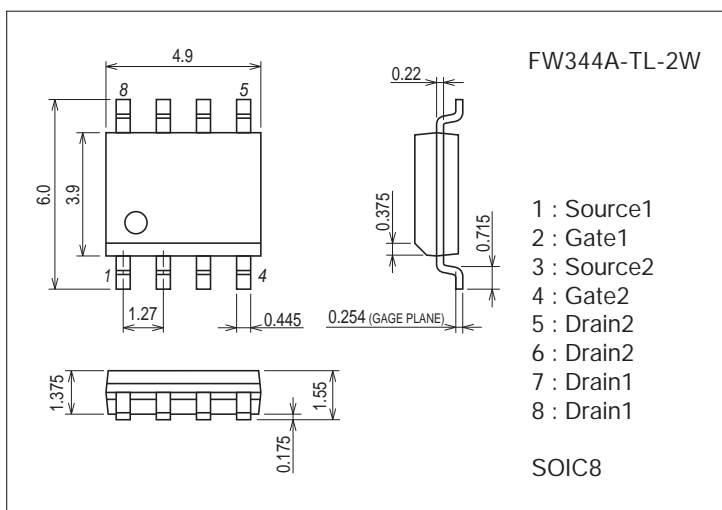
\* Machine Model

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### Package Dimensions

unit : mm (typ)

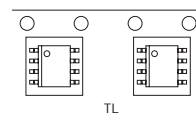
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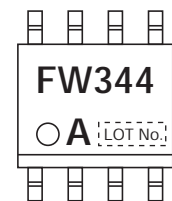
### Product & Package Information

- Package : SOIC8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 2,500 pcs./reel

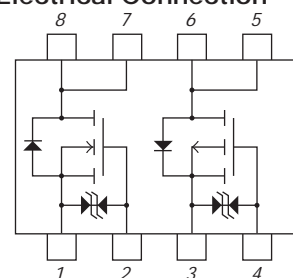
### Packing Type : TL



### Marking



### Electrical Connection



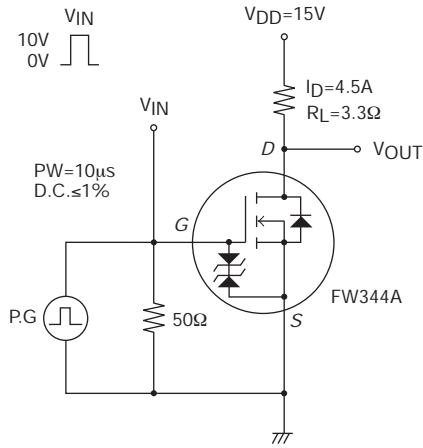
# FW344A

## Electrical Characteristics at Ta=25°C

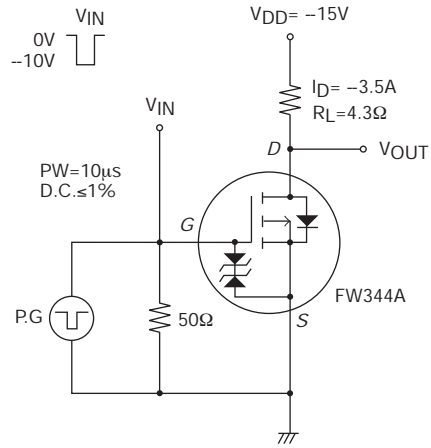
| Parameter                                  | Symbol              | Conditions                   | Ratings                     |     |       | Unit |
|--|---------------------|------------------------------|-----------------------------|-----|-------|------|
|  |                     |                              | min                         | typ | max   |      |
| [N-channel]                                |                     |                              |                             |     |       |      |
| Drain-to-Source Breakdown Voltage          | V(BR)DSS            | ID=1mA, VGS=0V               | 30                          |     |       | V    |
| Zero-Gate Voltage Drain Current            | IDSS                | VDS=30V, VGS=0V              |                             |     | 1     | μA   |
| Gate-to-Source Leakage Current             | IGSS                | VGS=±16V, VDS=0V             |                             |     | ±10   | μA   |
| Cutoff Voltage                             | VGS(off)            | VDS=10V, ID=1mA              | 1.2                         |     | 2.6   | V    |
| Forward Transfer Admittance                | yfs                 | VDS=10V, ID=4.5A             |                             | 2.6 |       | S    |
| Static Drain-to-Source On-State Resistance | RDS(on)1            | ID=4.5A, VGS=10V             |                             | 49  | 64    | mΩ   |
|  | RDS(on)2            | ID=2A, VGS=4.5V              |                             | 80  | 112   | mΩ   |
|  | RDS(on)3            | ID=2A, VGS=4V                |                             | 100 | 140   | mΩ   |
| Input Capacitance                          | Ciss                | VDS=10V, f=1MHz              |                             | 280 |       | pF   |
| Output Capacitance                         | Coss                |                              |                             | 60  |       | pF   |
| Reverse Transfer Capacitance               | Crss                |                              |                             | 30  |       | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>  |                              | See specified Test Circuit. |     | 6     |      |
| Rise Time                                  | t <sub>r</sub>      |                              |                             | 21  |       | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub> |                              |                             | 20  |       | ns   |
| Fall Time                                  | t <sub>f</sub>      |                              |                             | 10  |       | ns   |
| Total Gate Charge                          | Qg                  | VDS=10V, VGS=10V, ID=4.5A    |                             |     | 5.6   |      |
| Gate-to-Source Charge                      | Qgs                 |                              |                             | 1.2 |       | nC   |
| Gate-to-Drain "Miller" Charge              | Qgd                 |                              |                             | 0.8 |       | nC   |
| Diode Forward Voltage                      | VSD                 |                              | IS=4.5A, VGS=0V             |     | 0.85  | 1.2  |
| [P-channel]                                |                     |                              |                             |     |       |      |
| Drain-to-Source Breakdown Voltage          | V(BR)DSS            | ID=-1mA, VGS=0V              | -30                         |     |       | V    |
| Zero-Gate Voltage Drain Current            | IDSS                | VDS=-30V, VGS=0V             |                             |     | -1    | μA   |
| Gate-to-Source Leakage Current             | IGSS                | VGS=±16V, VDS=0V             |                             |     | ±10   | μA   |
| Cutoff Voltage                             | VGS(off)            | VDS=-10V, ID=-1mA            | -1.2                        |     | -2.3  | V    |
| Forward Transfer Admittance                | yfs                 | VDS=-10V, ID=-3.5A           |                             | 3.9 |       | S    |
| Static Drain-to-Source On-State Resistance | RDS(on)1            | ID=-3.5A, VGS=-10V           |                             | 78  | 102   | mΩ   |
|  | RDS(on)2            | ID=-2A, VGS=-4.5V            |                             | 125 | 175   | mΩ   |
|  | RDS(on)3            | ID=-2A, VGS=-4V              |                             | 145 | 205   | mΩ   |
| Input Capacitance                          | Ciss                | VDS=-10V, f=1MHz             |                             | 250 |       | pF   |
| Output Capacitance                         | Coss                |                              |                             | 65  |       | pF   |
| Reverse Transfer Capacitance               | Crss                |                              |                             | 46  |       | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>  |                              | See specified Test Circuit. |     | 5.4   |      |
| Rise Time                                  | t <sub>r</sub>      |                              |                             | 34  |       | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub> |                              |                             | 28  |       | ns   |
| Fall Time                                  | t <sub>f</sub>      |                              |                             | 24  |       | ns   |
| Total Gate Charge                          | Qg                  | VDS=-10V, VGS=-10V, ID=-3.5A |                             |     | 5     |      |
| Gate-to-Source Charge                      | Qgs                 |                              |                             | 1   |       | nC   |
| Gate-to-Drain "Miller" Charge              | Qgd                 |                              |                             | 1.2 |       | nC   |
| Diode Forward Voltage                      | VSD                 |                              | IS=-3.5A, VGS=0V            |     | -0.88 | -1.5 |

Switching Time Test Circuit

[N-channel]

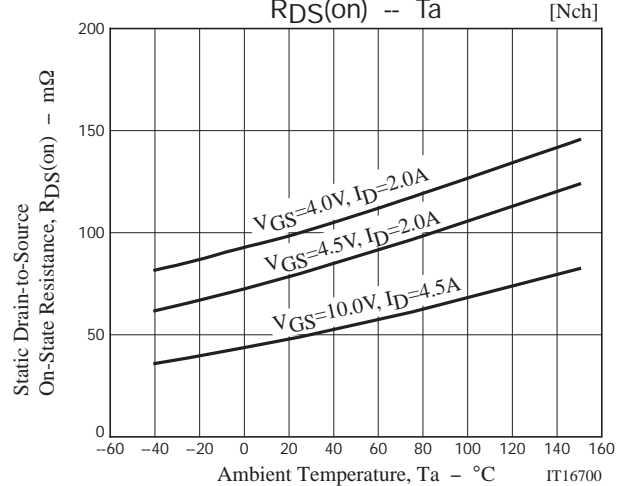
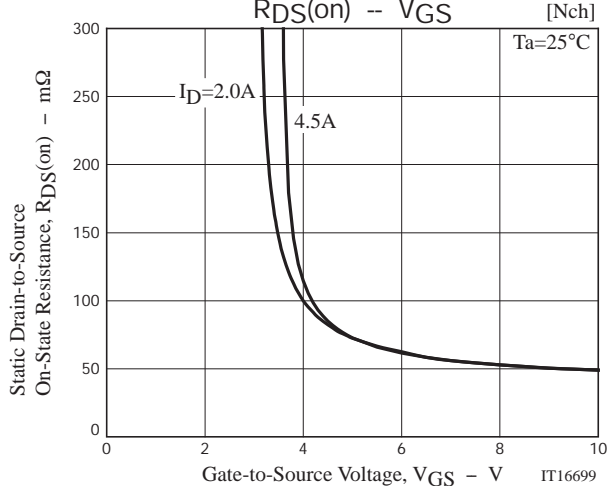
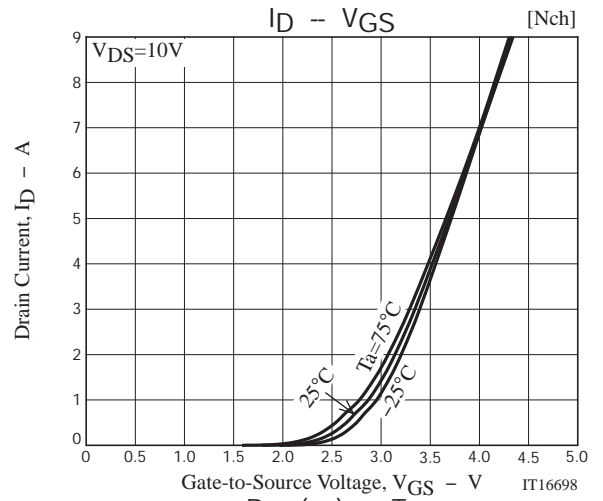
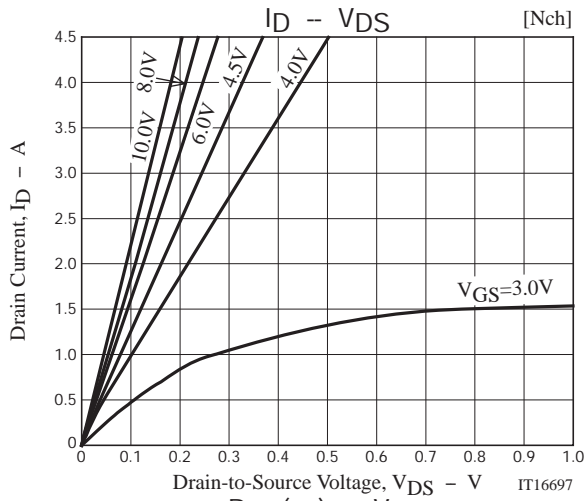


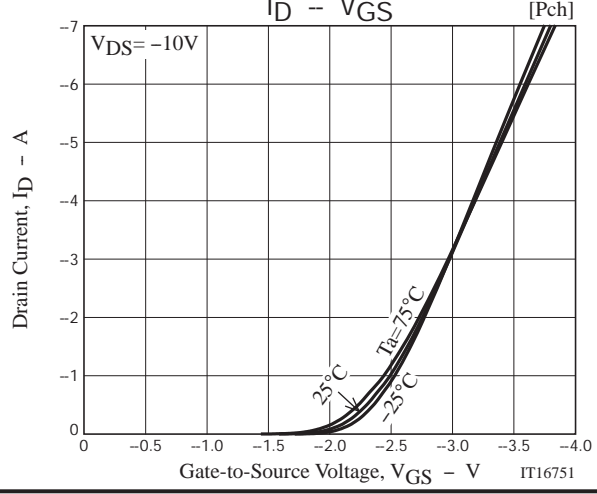
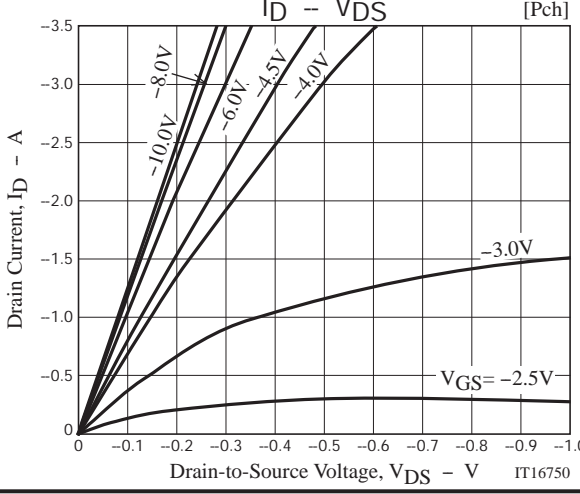
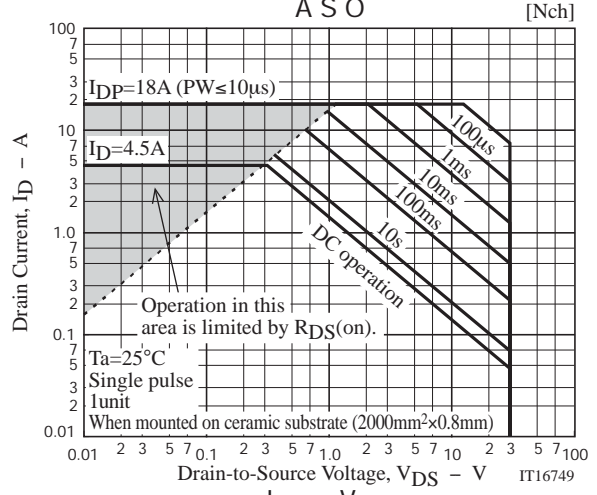
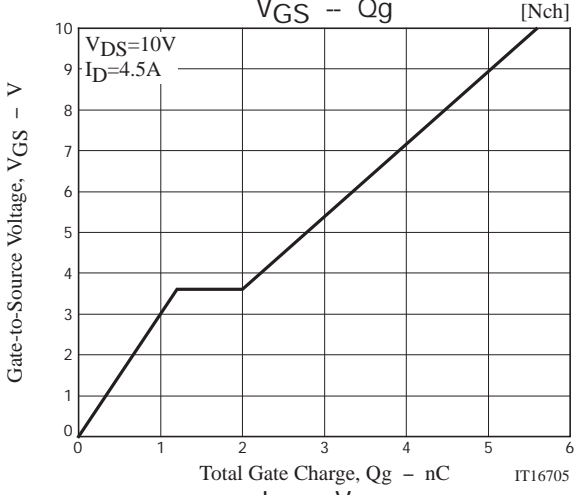
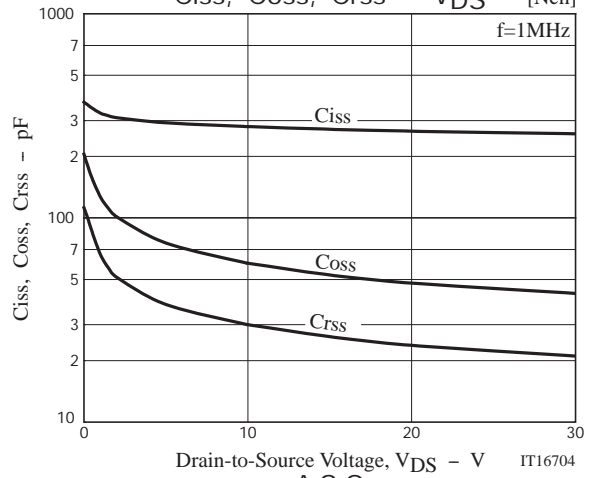
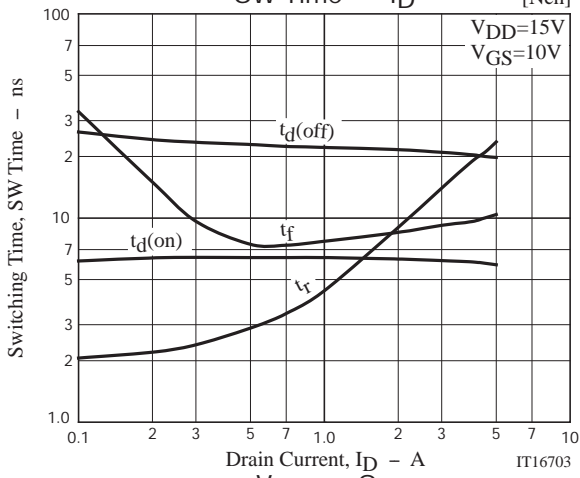
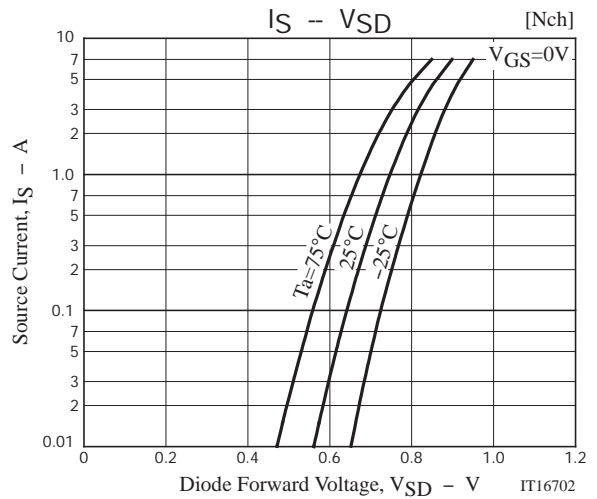
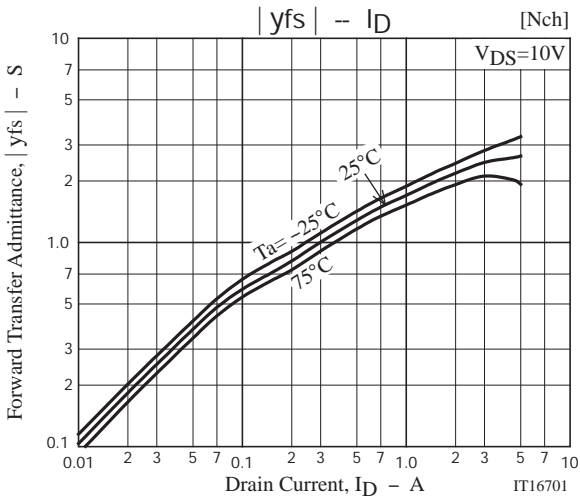
[P-channel]

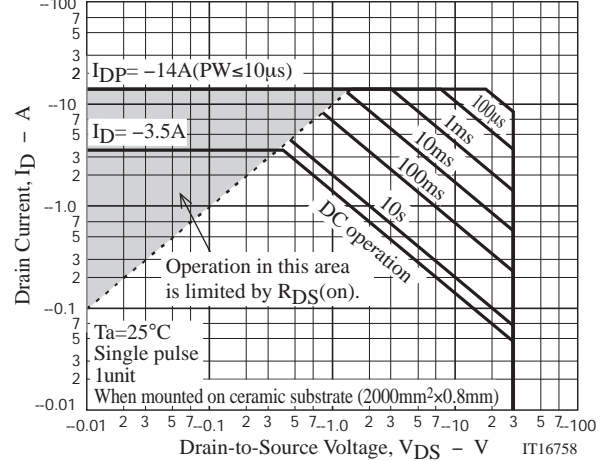
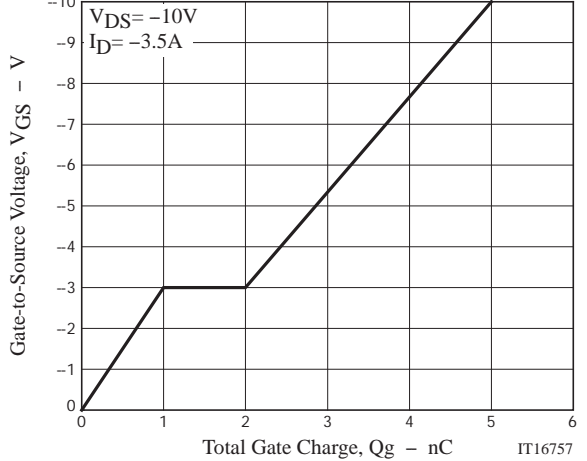
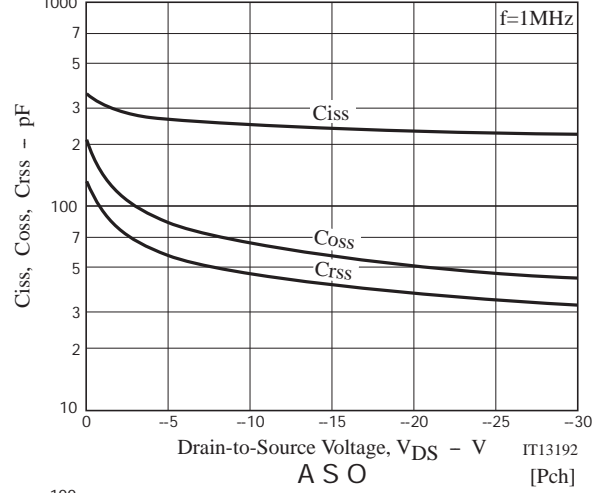
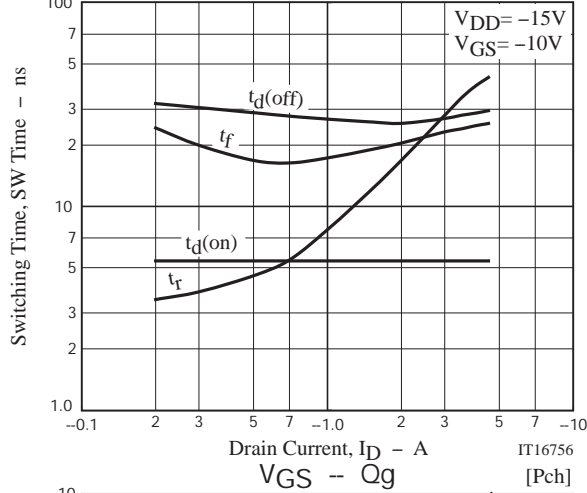
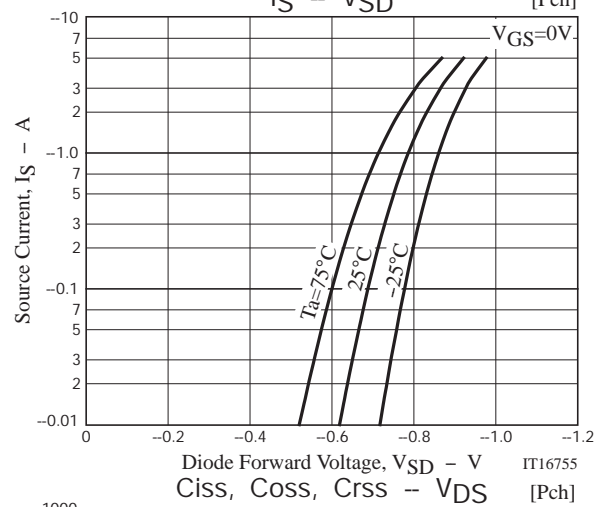
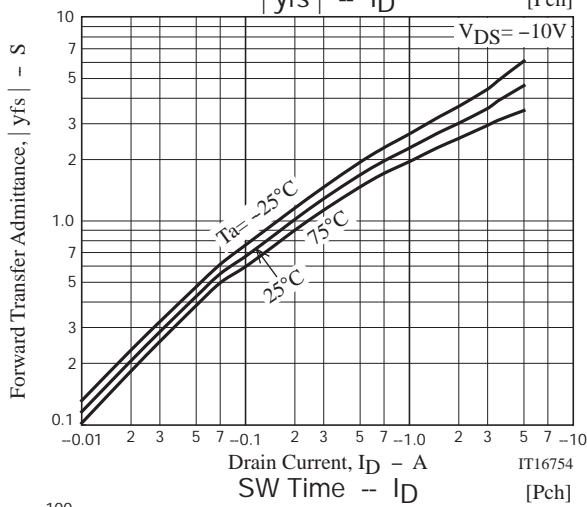
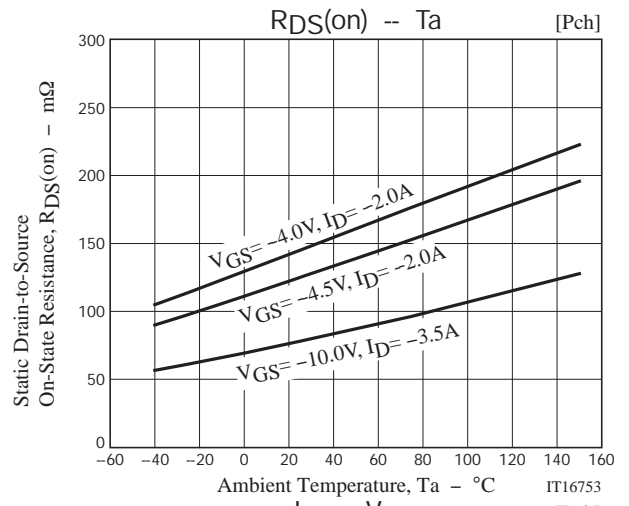
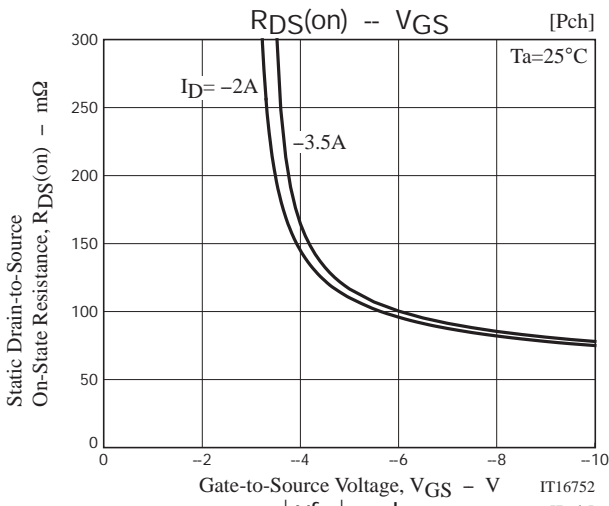


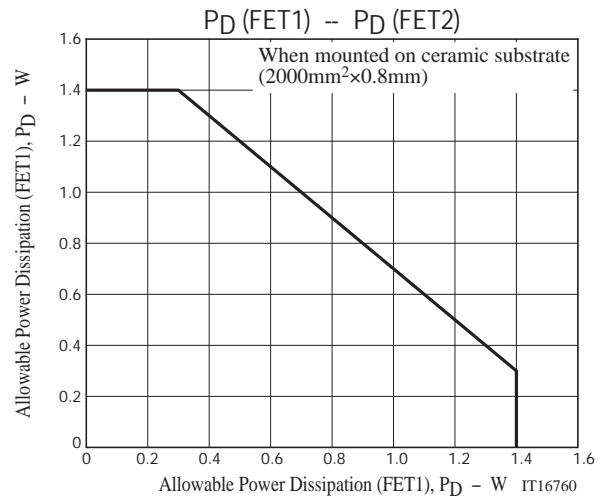
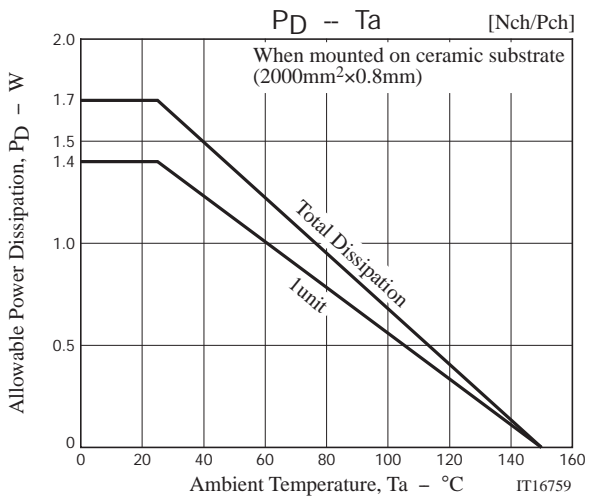
Ordering Information

| Device       | Package | Shipping       | memo                     |
|--------------|---------|----------------|--------------------------|
| FW344A-TL-2W | SOIC8   | 2,500pcs./reel | Pb Free and Halogen Free |









**Taping Specification**  
FW344A-TL-2W

**1. Packing Format**

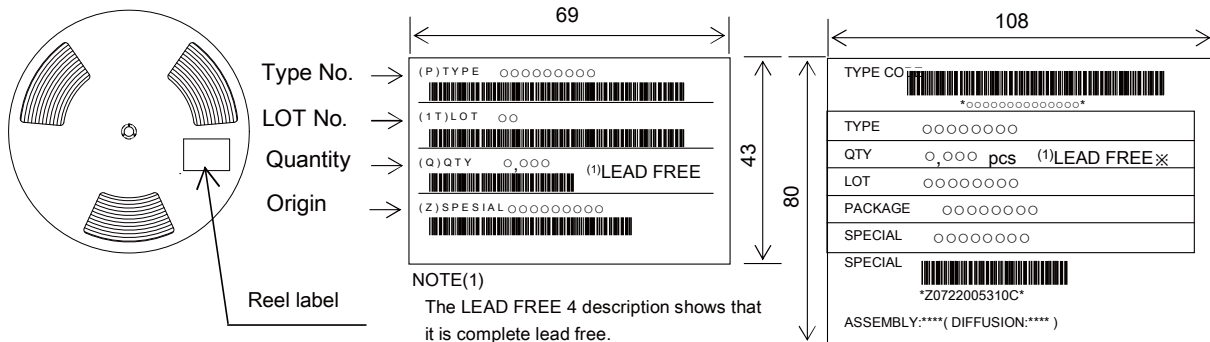
| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) |           |           | Packing format  |  |
|--------------|-------------------|---|-----------|-----------|---|--|
|              |                   | Reel                                      | Inner box | Outer box | Inner BOX W206-112  | Outer BOX W207-124   |
| SOIC8        | B202-101          | 2,500                                     | 12,500    | 25,000    | 5 reels contained<br>Dimensions :mm(external)<br>340×95×340 | 2 inner boxes contained<br>Dimensions :mm(external)<br>360×210×375 |

Packing method

Reel label, Inner box label  
(unit: mm)

Outer box label

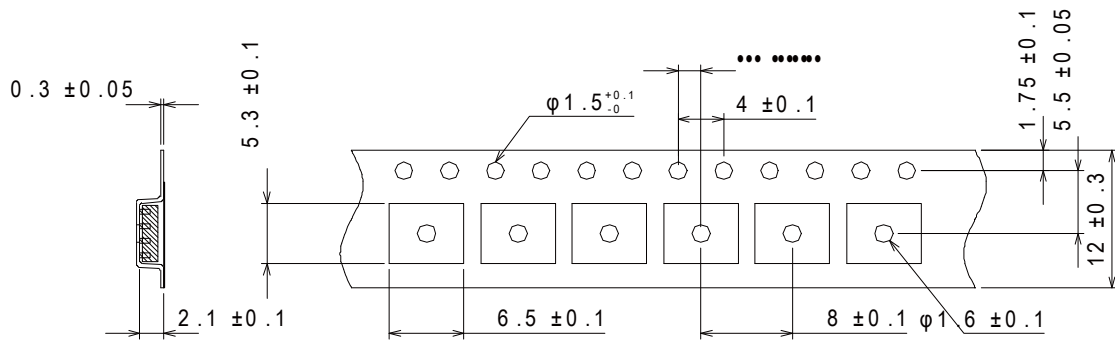
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.



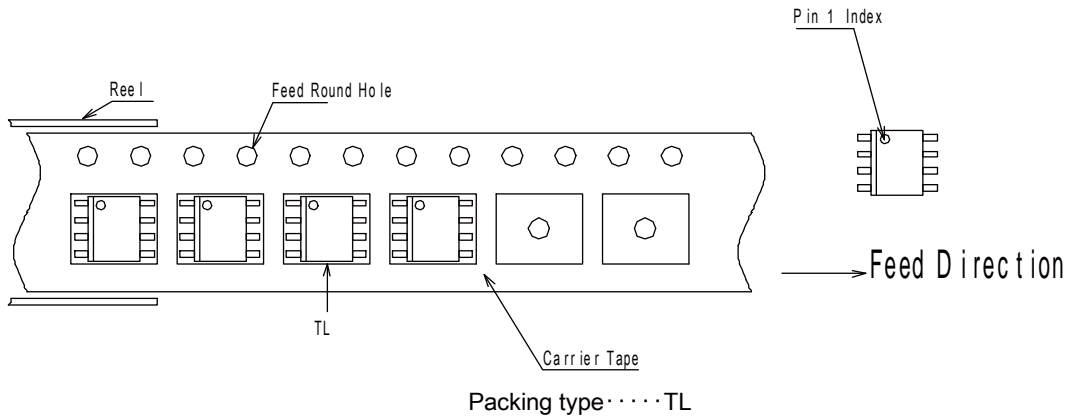
|             |               |
|-------------|---------------|
| Label       | JEITA Phase   |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

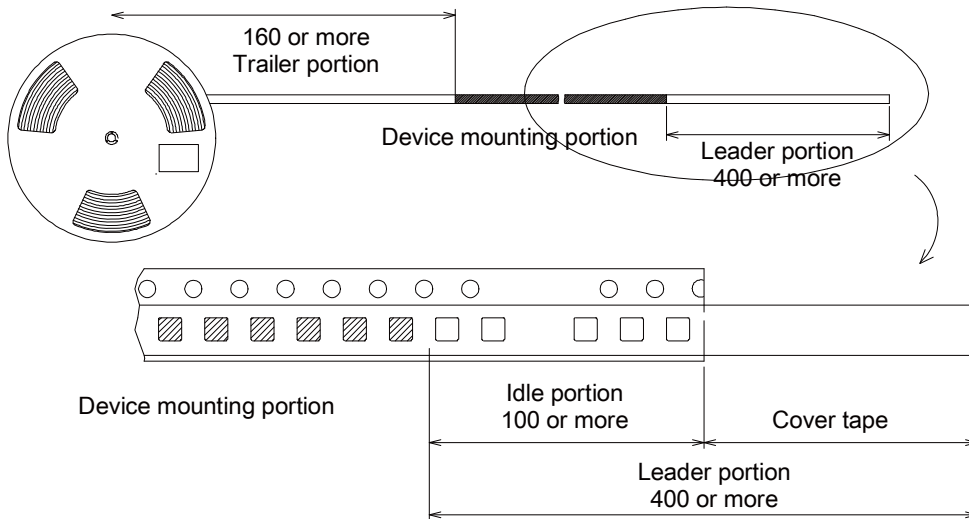
2-1. Carrier tape size (unit: mm)



2-2. Device placement direction



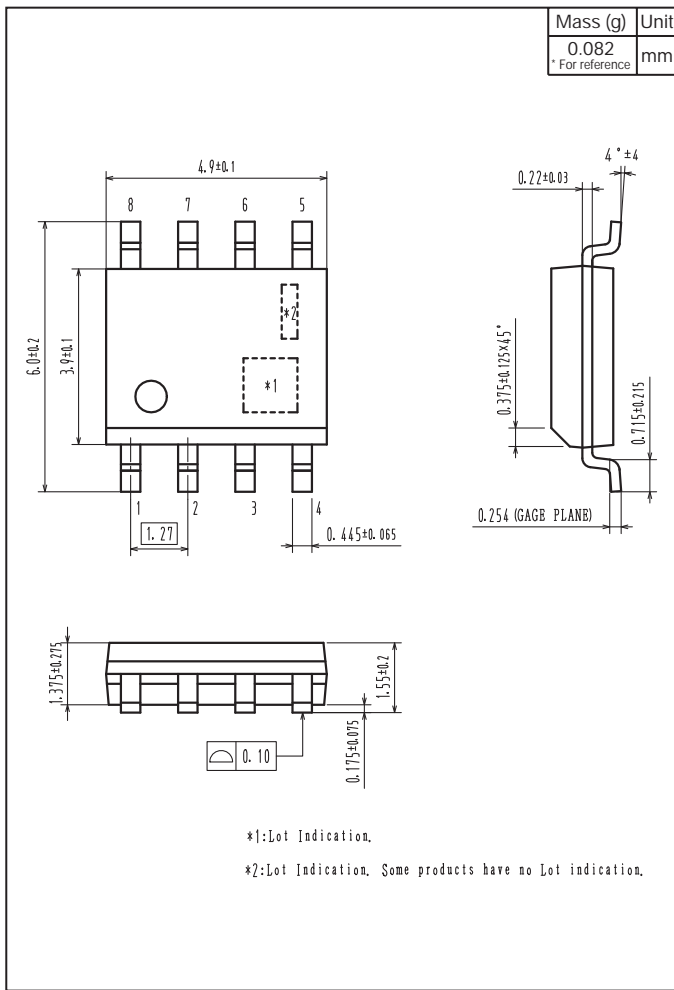
2-3. Leader portion and trailer portion (unit: mm)



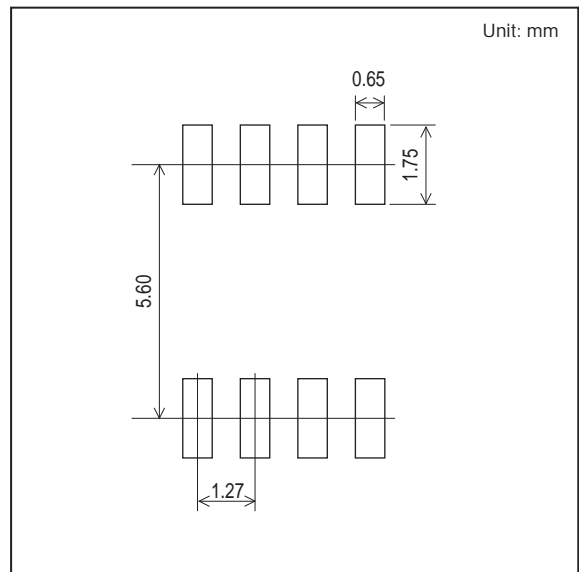
# FW344A

## Outline Drawing

FW344A-TL-2W



## Land Pattern Example





Note on usage : Since the FW344A is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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