



ON Semiconductor®

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TF412S

N-Channel JFET

30V, 1.2 to 3.0mA, 5.0mS, SOT-883

Features

- Small I_{GSS} : max -1.0nA ($V_{GS} = -20\text{V}$, $V_{DS} = 0\text{V}$)
- Small C_{iss} : typ 4pF ($V_{DS} = 10\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$)
- Ultrasmall package facilitates miniaturization in end products
- Halogen free compliance

Applications

- Low-Frequency general-purpose amplifier, impedance conversion, infrared sensor applications

Specifications

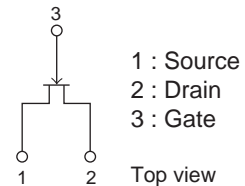
Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Value | Unit |
|-------------------------|-----------|-------------|------------------|
| Drain-to-Source Voltage | V_{DSX} | 30 | V |
| Gate-to-Drain Voltage | V_{GDS} | -30 | V |
| Gate Current | I_G | 10 | mA |
| Drain Current | I_D | 10 | mA |
| Power Dissipation | P_D | 100 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

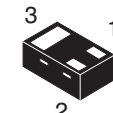
This product is designed to "ESD immunity $< 200\text{V}^*$ ", so please take care when handling.

* Machine Model

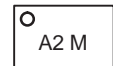
Electrical Connection



Marking



SOT-883



M = Date Code

Ordering & Package Information

| Device | Package | Shipping |
|--|---------|----------------------|
| TF412ST5G Pb-free and Halogen Free | SOT-883 | 8,000 pcs. / reel |

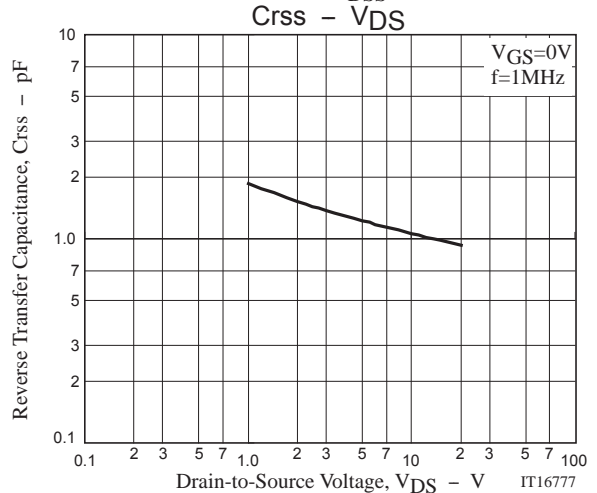
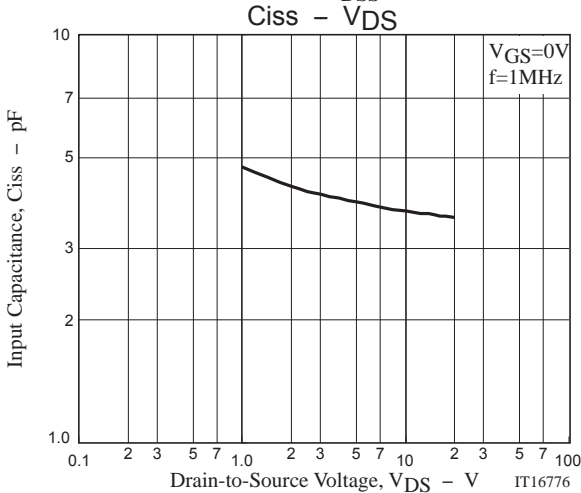
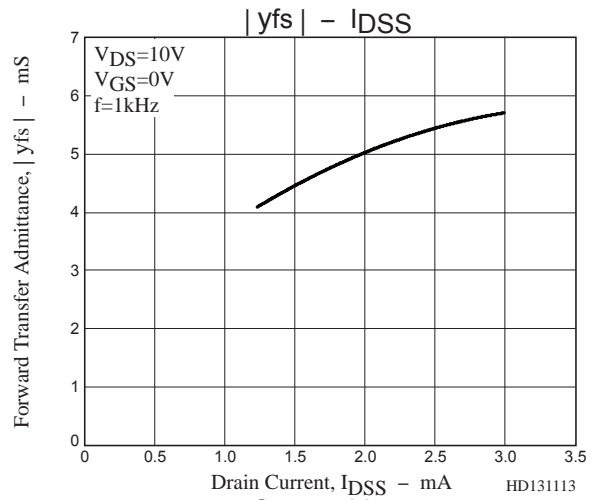
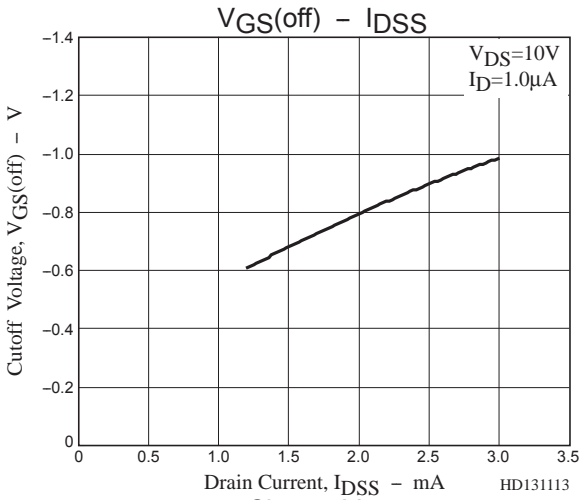
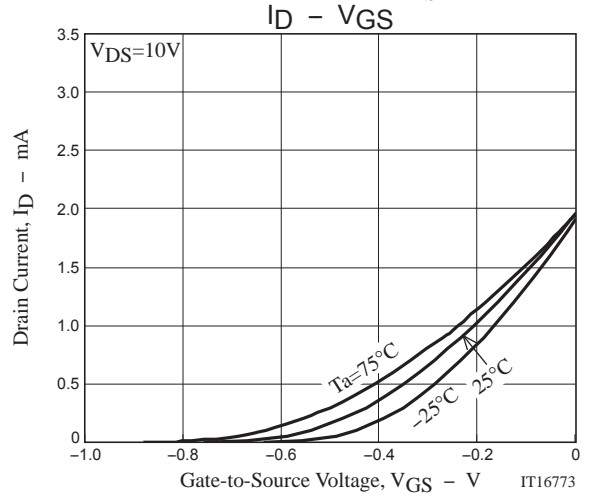
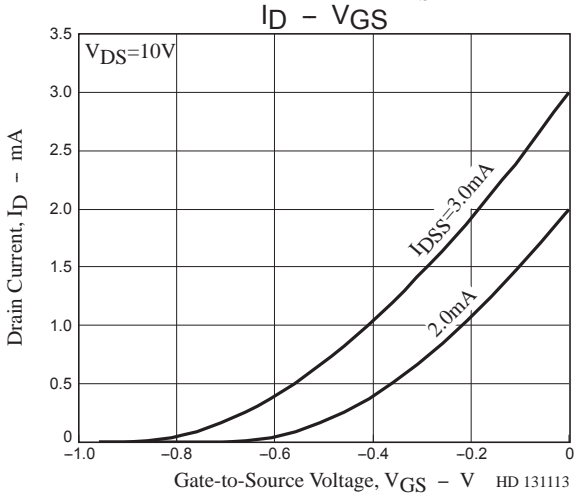
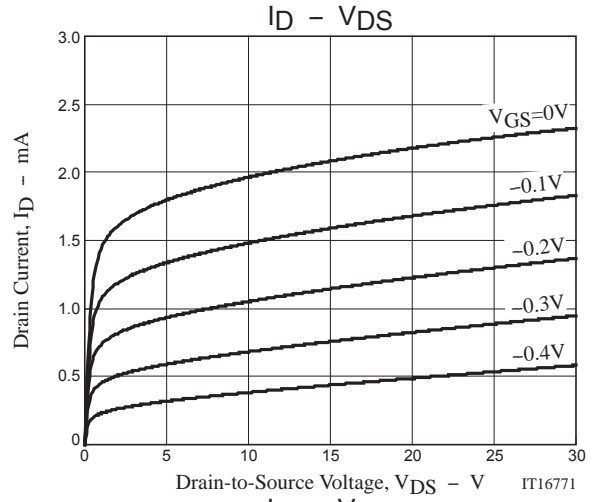
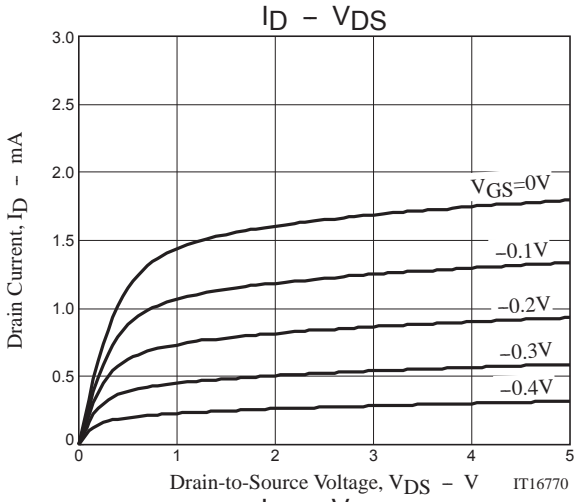
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Electrical Characteristics

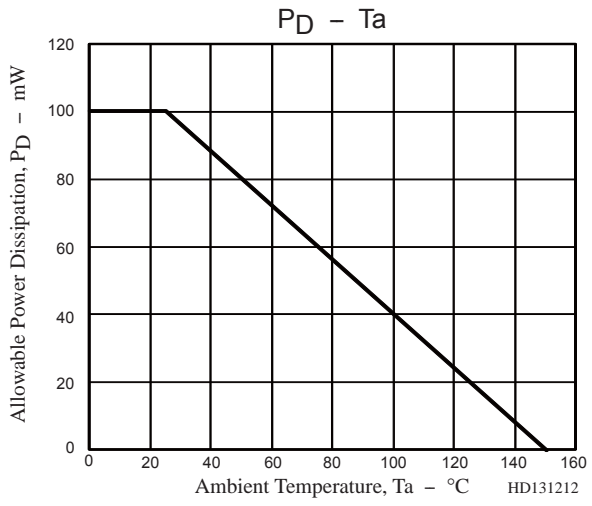
 at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Value | | | Unit |
|---------------------------------|---------------|--|-------|-------|------|------|
| | | | min | typ | max | |
| Gate-to-Drain Breakdown Voltage | $V_{(BR)GDS}$ | $I_G = -10\mu\text{A}$, $V_{DS} = 0\text{V}$ | -30 | | | V |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = -20\text{V}$, $V_{DS} = 0\text{V}$ | | | -1.0 | nA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = 10\text{V}$, $I_D = 1\mu\text{A}$ | -0.18 | -0.80 | -1.5 | V |
| Drain Current | I_{DSS} | $V_{DS} = 10\text{V}$, $V_{GS} = 0\text{V}$ | 1.2 | | 3.0 | mA |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = 10\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{kHz}$ | 3.0 | 5.0 | | mS |
| Input Capacitance | C_{iss} | $V_{DS} = 10\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$ | | 4 | | pF |
| Reverse Transfer Capacitance | C_{rss} | | | 1.1 | | pF |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



TF412S



Package Dimensions

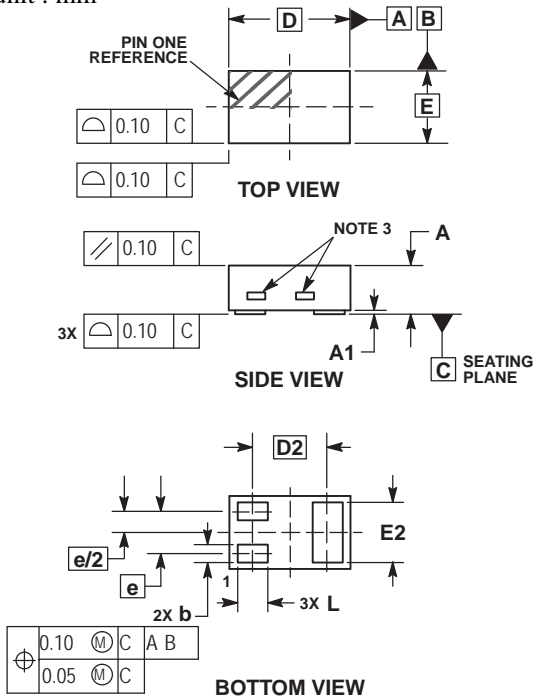
TF412ST5G

SOT-883 (XDFN3), 1.0x0.6, 0.35P

CASE 506CB

ISSUE A

unit : mm

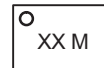


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. EXPOSED COPPER ALLOWED AS SHOWN.

| MILLIMETERS | | |
|-------------|-----------|-------|
| DIM | MIN | MAX |
| A | 0.340 | 0.440 |
| A1 | 0.000 | 0.030 |
| b | 0.075 | 0.200 |
| D | 0.950 | 1.075 |
| D2 | 0.620 BSC | |
| e | 0.350 BSC | |
| E | 0.550 | 0.675 |
| E2 | 0.425 | 0.550 |
| L | 0.170 | 0.300 |

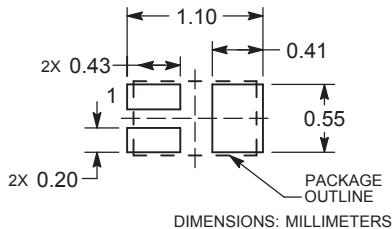
GENERIC MARKING DIAGRAM*



XX = Specific Device Code
M = Date Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G", may or not be present.

RECOMMENDED SOLDER FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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