Ordering number : ENA2300A

TF412S

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

ON Semiconductor®

http://onsemi.com

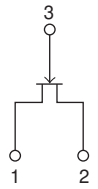
Features

- Small IGSS : max −1.0nA (V_{GS}= −20V, V_{DS}=0V)
- Small Ciss : typ 4pF (V_{DS}=10V, V_{GS}=0V, f=1MHz)
- Ultrasmall package facilitates miniaturization in end products
- Halogen free compliance

Applications

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

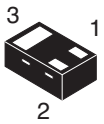
Electrical Connection



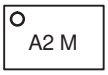
1 : Source
2 : Drain
3 : Gate

Top view

Marking



SOT-883



M = Date Code

Specifications

Absolute Maximum Ratings at Ta = 25°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	Tj	150	°C
Storage Temperature	Tstg	−55 to +150	°C

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

Ordering & Package Information

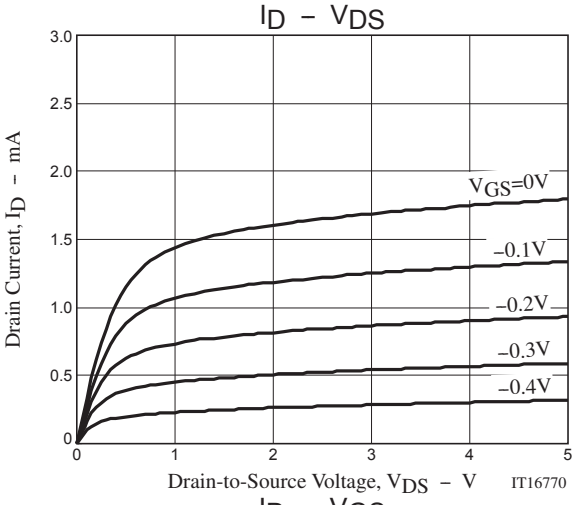
Device	Package	Shipping
TF412ST5G Pb-free and Halogen Free	SOT-883	8,000 pcs. / reel

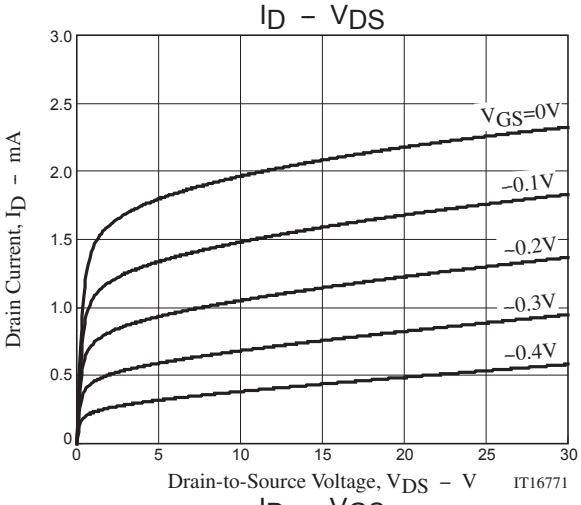
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

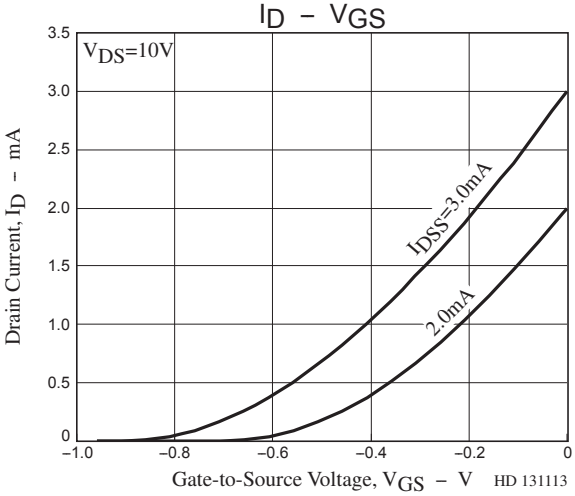
Electrical Characteristics at Ta = 25°C

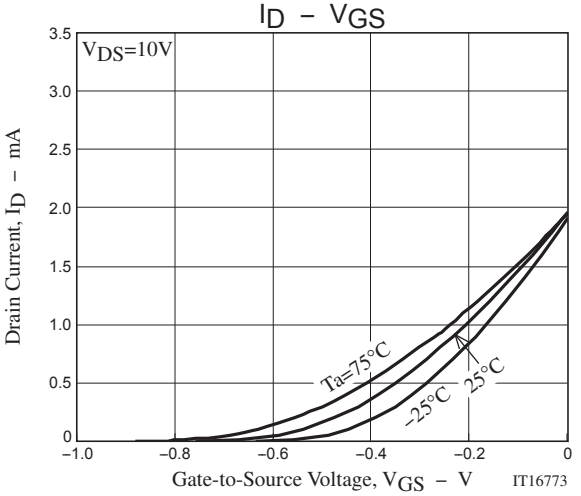
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDS}$	I_G = −10μA, V_{DS}=0V	−30			V
Gate-to-Source Leakage Current	I_{GSS}	V_{GS} = −20V, V_{DS}=0V			−1.0	nA
Cutoff Voltage	$V_{GS}(off)$	V_{DS} = 10V, I_D = 1μA	−0.18	−0.80	−1.5	V
Drain Current	I_{DSS}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

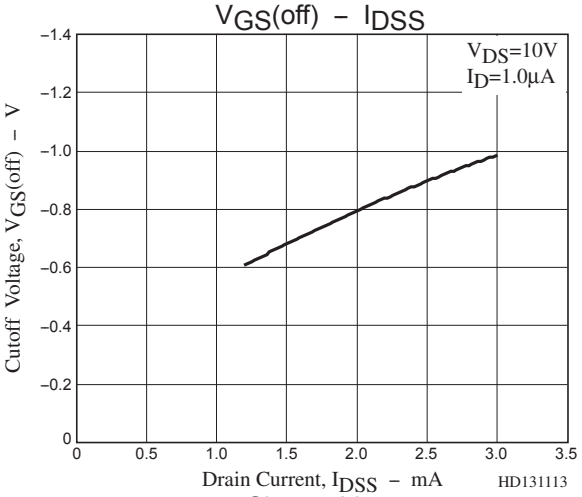
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

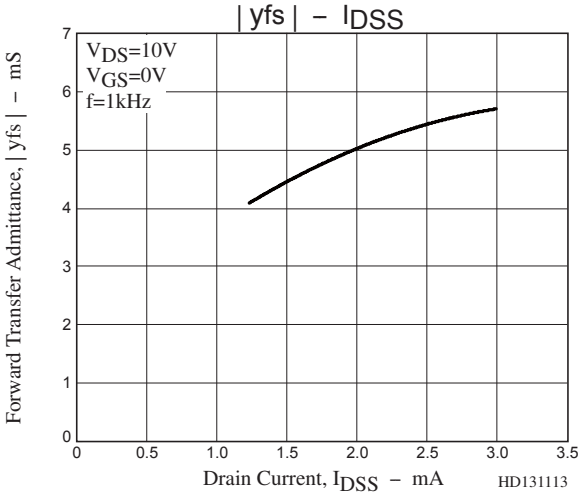

ID – VDS
Drain Current, ID – mA
VGS=0V
–0.1V
–0.2V
–0.3V
–0.4V
Drain-to-Source Voltage, VDS – V
IT16770

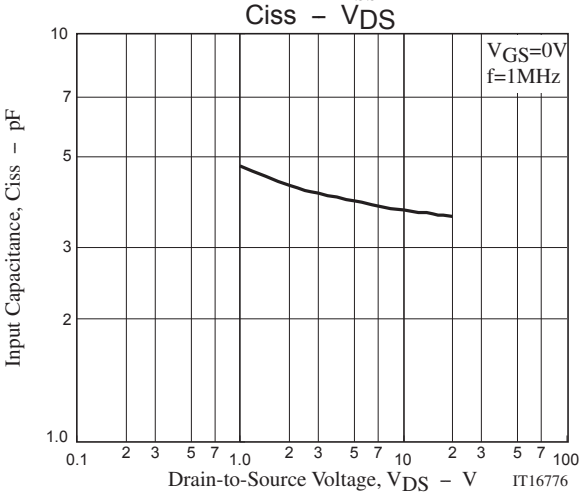

ID – VDS
Drain Current, ID – mA
VGS=0V
–0.1V
–0.2V
–0.3V
–0.4V
Drain-to-Source Voltage, VDS – V
IT16771

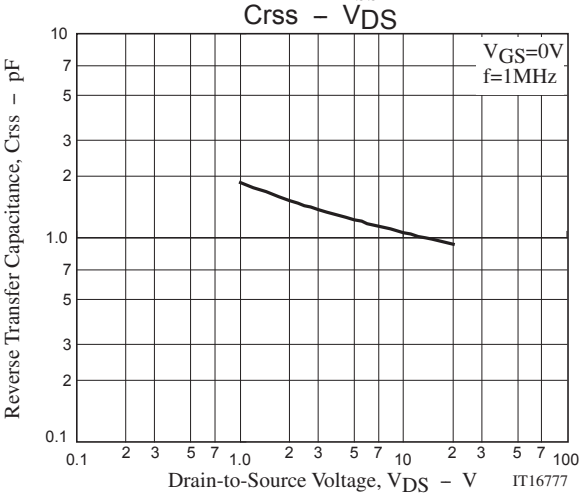

ID – VGS
VDS=10V
IDSS=3.0mA
2.0mA
Drain Current, ID – mA
Gate-to-Source Voltage, VGS – V
HD 131113

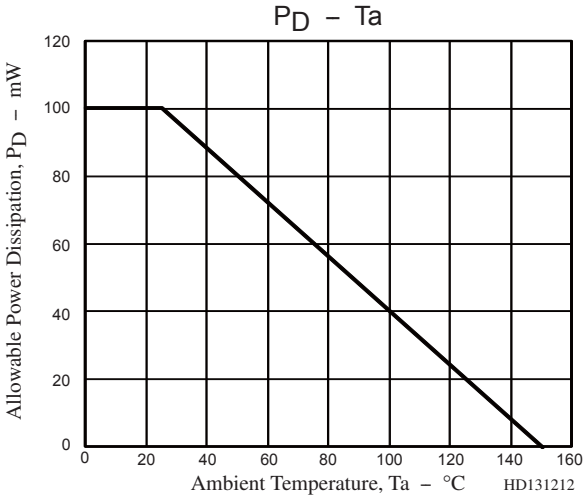

ID – VGS
VDS=10V
Ta=75°C
25°C
–25°C
Drain Current, ID – mA
Gate-to-Source Voltage, VGS – V
IT16773


VGS(off) – IDSS
VDS=10V
ID=1.0µA
Cutoff Voltage, VGS(off) – V
Drain Current, IDSS – mA
HD131113


| yfs | – IDSS
VDS=10V
VGS=0V
f=1kHz
Forward Transfer Admittance, | yfs | – mS
Drain Current, IDSS – mA
HD131113


Ciss – VDS
VGS=0V
f=1MHz
Input Capacitance, Ciss – pF
Drain-to-Source Voltage, VDS – V
IT16776


Crss – VDS
VGS=0V
f=1MHz
Reverse Transfer Capacitance, Crss – pF
Drain-to-Source Voltage, VDS – V
IT16777

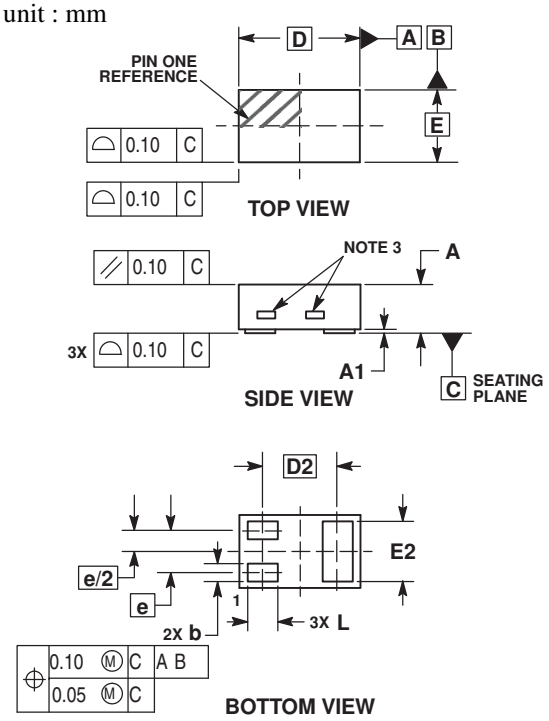

PD – Ta
Allowable Power Dissipation, PD – mW
120
100
80
60
40
20
0
0
20
40
60
80
100
120
140
160
Ambient Temperature, Ta – °C
HD131212

Package Dimensions

TF412ST5G

SOT-883 (XDFN3), 1.0x0.6, 0.35P
CASE 506CB
ISSUE A

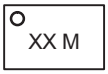
unit : mm



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

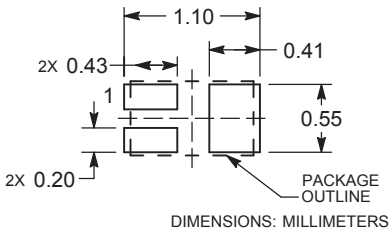
GENERIC MARKING DIAGRAM*



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*



DIMENSIONS: MILLIMETERS

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