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

TF412S

Features

- Small IGSS: Max $-1.0 \text{ nA} (V_{GS} = -20 \text{ V}, V_{DS} = 0 \text{ V})$
- Small Ciss: Typ 4 pF ($V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$)
- Ultrasmall Package Facilitates Miniaturization in End Products
- This is a Pb-Free and Halogen Free Device

Applications

• Low-Frequency General-purpose Amplifier, Impedance Conversion, **Infrared Sensor Applications**

Specifications

ABSOLUTE MAXIMUM RATINGS (at Ta = 25°C)

Symbol	Parameter	Value	Unit
V _{DSX}	Drain-to-Source Voltage	30	V
V _{GDS}	Gate-to-Drain Voltage	-30	V
I _G	Gate Current	10	mA
I _D	Drain Current	10	mA
P _D	Power Dissipation	100	mW
Tj	Junction Temperature	150	°C
Tstg	Storage Temperature	-55 to +150	°C

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.

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

* Machine Model

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ELETRICAL CONNECTION



- 1: Source
- 2: Drain 3: Gate
- Top View



SOT-883 (XDFN3) CASE 506CB

MARKING DIAGRAM



= Specific Device Code A2

= Date Code

ORDERING INFORMATION

Device	Package	Shipping [†]
TF412ST5G	SOT-883	8.000 Tape / Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

TF412S

ELECTRICAL CHARACTERISTICS (at $T_A = 25^{\circ}C$)

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V _{(BR)GDS}	Gate-to-Drain Breakdown Voltage	$I_G = -10 \mu A, V_{DS} = 0 V$	-30			V
I _{GSS}	Gate-to-Source Leakage Current	$V_{GS} = -20 \text{ V}, V_{DS} = 0 \text{ V}$			-1.0	nA
V _{GS} (off)	Cutoff Voltage	V_{DS} = 10 V, I_{D} = 1 μA	-0.18	-0.80	-1.5	٧
I _{DSS}	Drain Current	V _{DS} = 10 V, V _{GS} = 0 V	1.2		3.0	mA
yfs	Forward Transfer Admittance	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 kHz	3.0	5.0		mS
Ciss	Input Capacitance	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 MHz		4		pF
Crss	Reverse Transfer Capacitance			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

TYPICAL CHARACTERISTICS

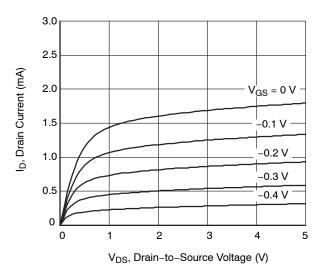


Figure 1. I_D - V_{DS}

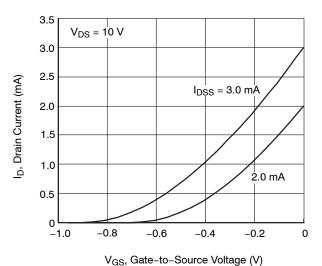


Figure 3. I_D - V_{GS}

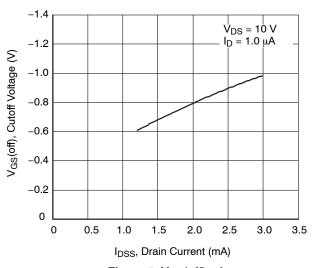


Figure 5. V_{GS}(off) - I_{DSS}

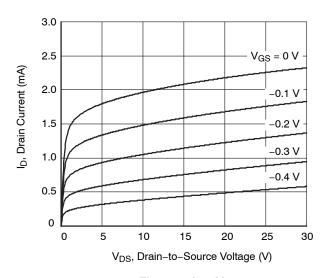


Figure 2. $I_D - V_{DS}$

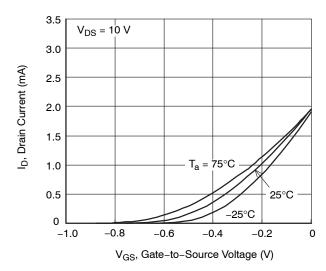


Figure 4. I_D - V_{GS}

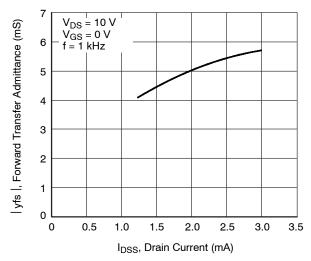


Figure 6. |yfs| - I_{DSS}

TYPICAL CHARACTERISTICS (continued)

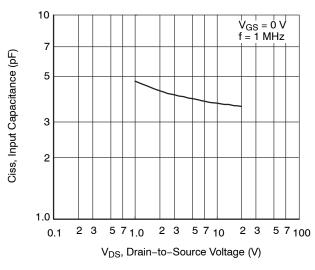


Figure 7. Ciss – V_{DS}

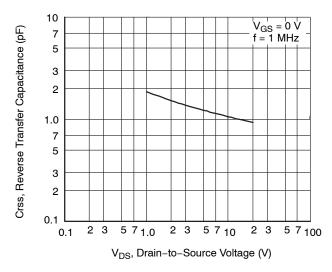


Figure 8. Crss - V_{DS}

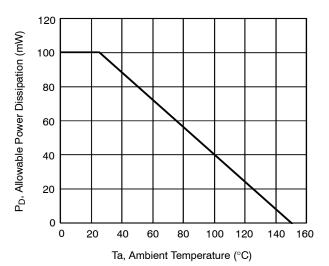


Figure 9. P_D - Ta

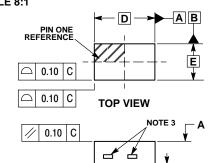


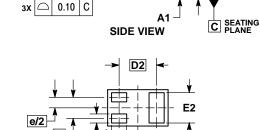
SOT-883 (XDFN3), 1.0x0.6, 0.35P

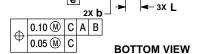
CASE 506CB ISSUE A

DATE 30 MAR 2012

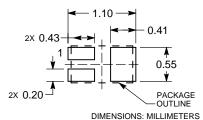








RECOMMENDED SOLDER FOOTPRINT*



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

NOTES:

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

	MILLIMETERS		
DIM	MIN	MAX	
Α	0.340	0.440	
A1	0.000	0.030	
b	0.075	0.200	
D	0.950	1.075	
D2	0.620 BSC		
е	0.350 BSC		
Е	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.

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DESCRIPTION:	SOT-883 (XDFN3), 1.0X0.6, 0.35P		PAGE 1 OF 1

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