TF262TH

N-Channel JFET
−20V, 140 to 350μA, 0.95mS

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Features

- Low Output Noise Voltage : V_{NO}= -112dB typ. (V_{CC}=2V, R_L=2.2kΩ, Cin=5pF)
- Ultrasmall Package Facilitates Miniaturization in End Products : 1.4mm × 1.2mm × 0.34mm
- Especially Suited for use in electret condenser microphone for audio equipments and telephones
- Adoption of FBET process
- Halogen Free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

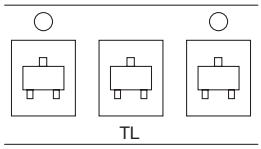
Parameter	Symbol	Conditions	Ratings	Unit
Gate to Drain Voltage	V_{GDO}		−20	V
Gate Current	I_G		10	mA
Drain Current	I_D		1	mA
Allowable Power Dissipation	P_D		100	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

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

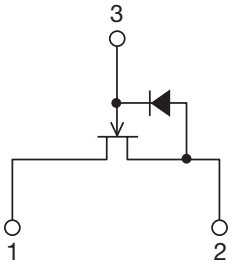
* Machine Model

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.

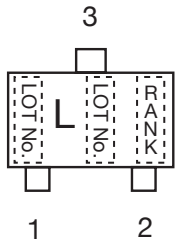
Packing Type : TL



Electrical Connection



Marking



TF262TH-4-TL-H
TF262TH-5-TL-H

1 : Drain
2 : Source
3 : Gate

SOT-623 / VTFP

ORDERING INFORMATION

See detailed ordering and shipping information on page 6 of this data sheet.

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Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate to Drain Breakdown Voltage	$V_{(BR)GDO}$	I_G=−100μA	−20			V
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=2V, I_D=1μA	−0.2	−0.5	−1.0	V
Drain Current	I_{DSS}	V_{DS}=2V, V_{GS}=0V	140*		350*	μA
Forward Transfer Admittance	| yfs |	V_{DS}=2V, V_{GS}=0V, f=1kHz	0.5	0.95		mS
Input Capacitance	Ciss	V_{DS}=2V, V_{GS}=0V, f=1MHz		3.5		pF
Reverse Transfer Capacitance	Crss	V_{DS}=2V, V_{GS}=0V, f=1MHz		0.65		pF
[Ta=25°C, V_{CC}=2.0V, R_L=2.2kΩ, Cin=5pF, See specified Test Circuit.]						
Voltage Gain	GV	V_{IN}=10mV, f=1kHz		−1.5		dB
Reduced Voltage Characteristic	ΔGVV	V_{IN}=10mV, f=1kHz, V_{CC}=2.0V → 1.5V		−0.8	−2.0	dB
Frequency Characteristic	ΔGvf	f=1kHz to 110Hz			−1.0	dB
Total Harmonic Distortion	THD	V_{IN}=30mV, f=1kHz		0.5		%
Output Noise Voltage	V_{NO}	V_{IN}=0V, A Curve		−112		dB

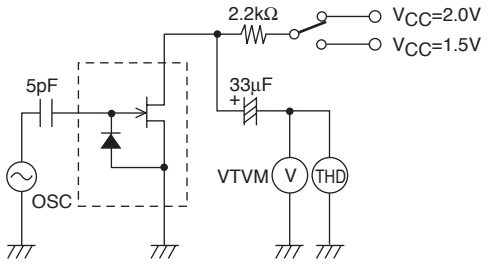
* : The TF262TH is classified by I_{DSS} as follows : (unit : μA)

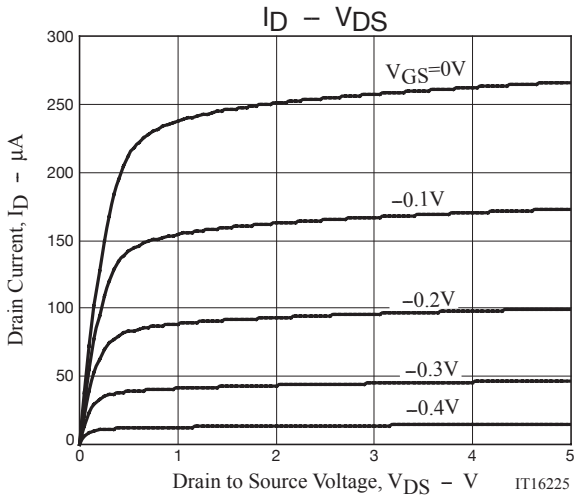
Marking	L4	L5
Rank	4	5
I_{DSS}	140 to 240	210 to 350

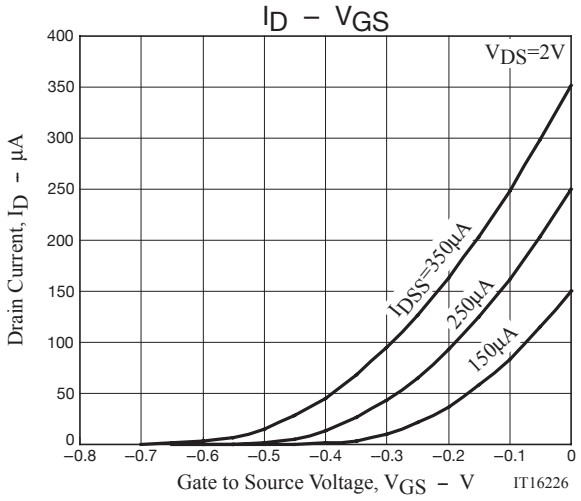
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

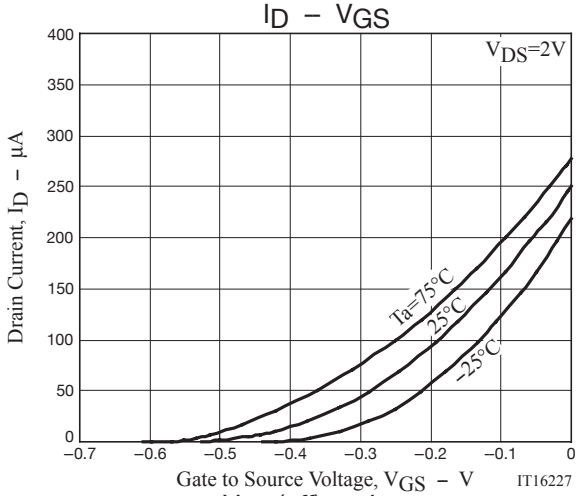
Test Circuit

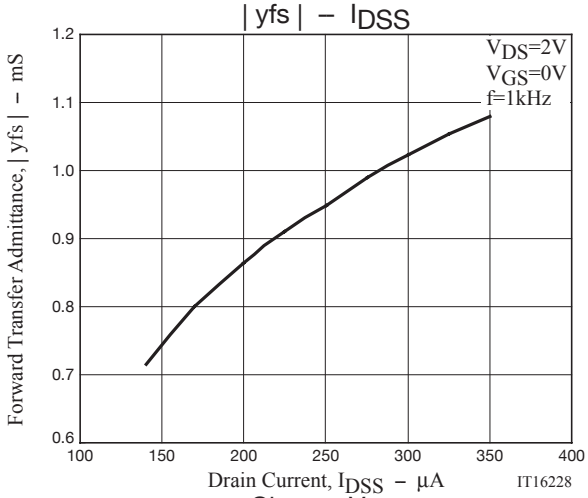
Voltage gain
Frequency Characteristic
Distortion
Reduced Voltage Characteristic

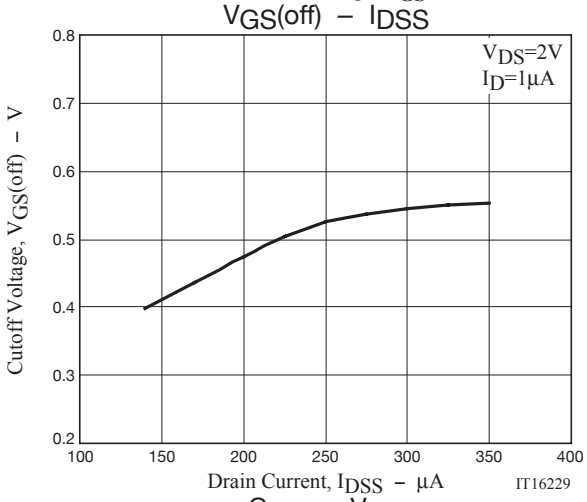


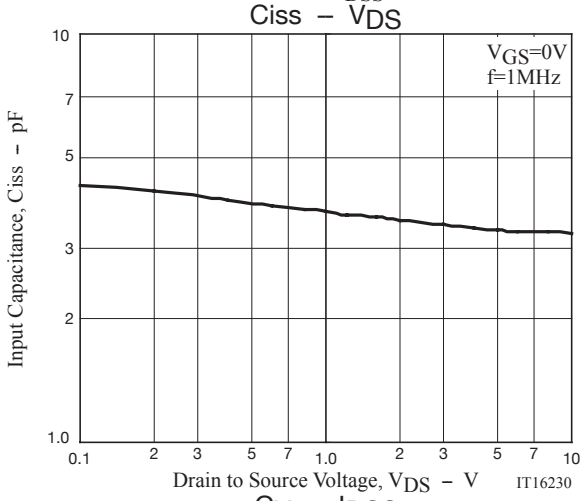


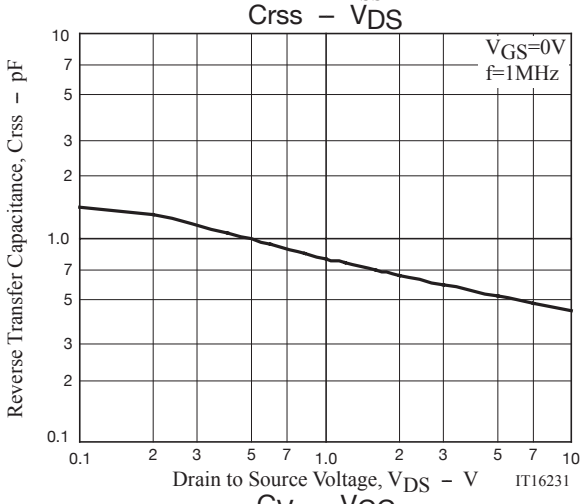


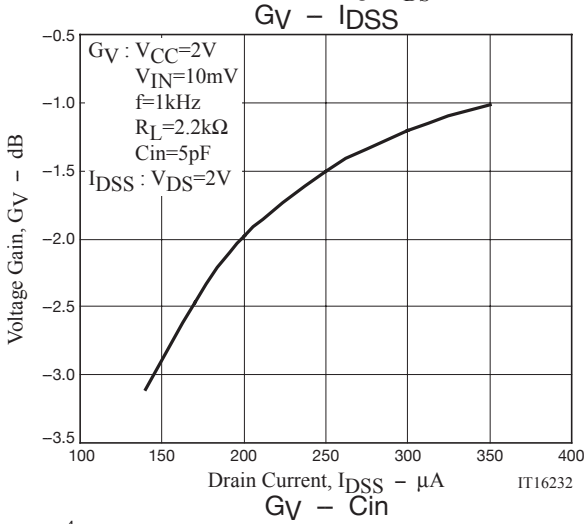

I_D – V_{GS}
V_{DS}=2V
Ta=75°C
25°C
–25°C
Drain Current, I_D – µA
Gate to Source Voltage, V_{GS} – V
IT16227

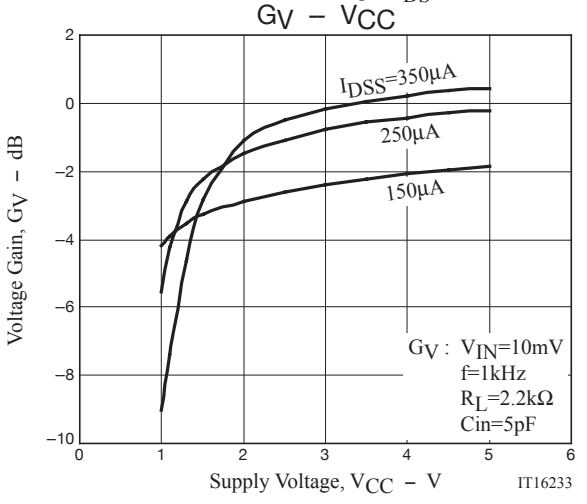

| yfs | – I_{DSS}
V_{DS}=2V
V_{GS}=0V
f=1kHz
Forward Transfer Admittance, | yfs | – mS
Drain Current, I_{DSS} – µA
IT16228

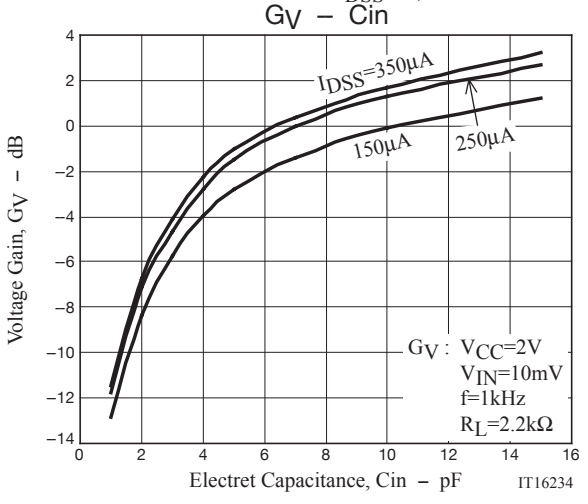

$V_{GS(off)}$ – I_{DSS}
V_{DS}=2V
I_D=1µA
Cutoff Voltage, $V_{GS(off)}$ – V
Drain Current, I_{DSS} – µA
IT16229

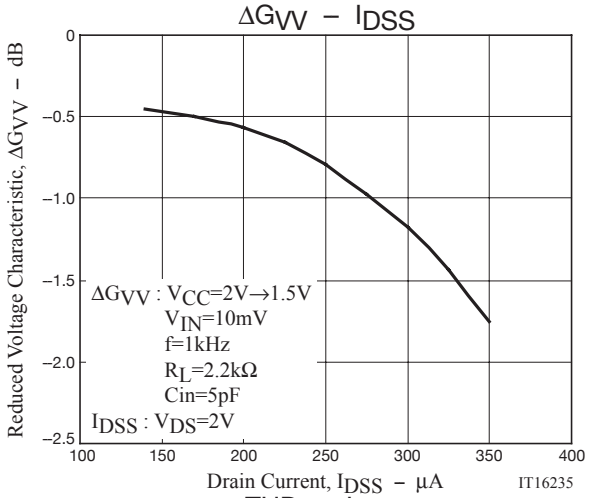

Ciss – V_{DS}
V_{GS}=0V
f=1MHz
Input Capacitance, Ciss – pF
Drain to Source Voltage, V_{DS} – V
IT16230

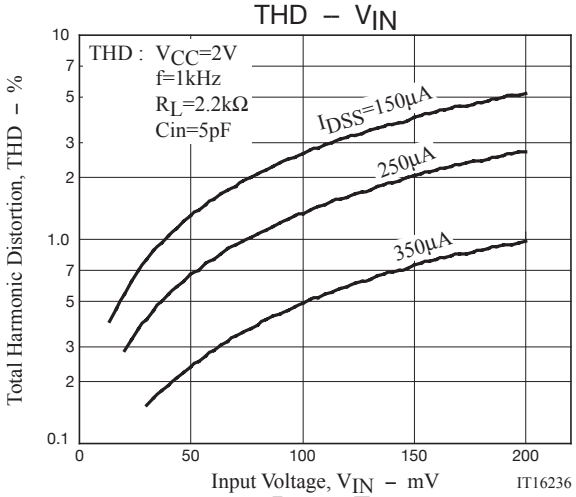

Crss – V_{DS}
V_{GS}=0V
f=1MHz
Reverse Transfer Capacitance, Crss – pF
Drain to Source Voltage, V_{DS} – V
IT16231

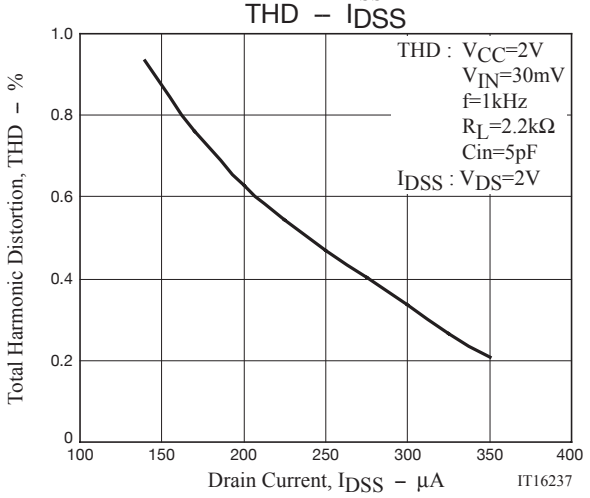

G_V – I_{DSS}
G_V : V_{CC}=2V
V_{IN}=10mV
f=1kHz
R_L=2.2kΩ
Cin=5pF
I_{DSS} : V_{DS}=2V
Voltage Gain, G_V – dB
Drain Current, I_{DSS} – µA
IT16232

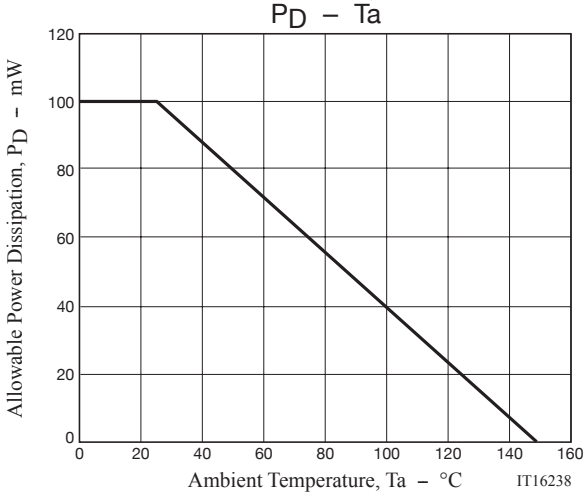

G_V – V_{CC}
I_{DSS}=350µA
250µA
150µA
G_V : V_{IN}=10mV
f=1kHz
R_L=2.2kΩ
Cin=5pF
Voltage Gain, G_V – dB
Supply Voltage, V_{CC} – V
IT16233


G_V – Cin
I_{DSS}=350µA
150µA
250µA
G_V : V_{CC}=2V
V_{IN}=10mV
f=1kHz
R_L=2.2kΩ
Voltage Gain, G_V – dB
Electret Capacitance, Cin – pF
IT16234


ΔGVV – IDSS
Reduced Voltage Characteristic, ΔGVV – dB
0
–0.5
–1.0
–1.5
–2.0
–2.5
ΔGVV : VCC=2V→1.5V
VIN=10mV
f=1kHz
RL=2.2kΩ
Cin=5pF
IDSS : VDS=2V
100
150
200
250
300
350
400
Drain Current, IDSS – μA
IT16235


THD – VIN
Total Harmonic Distortion, THD – %
10
7
5
3
2
1.0
7
5
3
2
0.1
THD : VCC=2V
f=1kHz
RL=2.2kΩ
Cin=5pF
IDSS=150μA
250μA
350μA
0
50
100
150
200
Input Voltage, VIN – mV
IT16236


THD – IDSS
Total Harmonic Distortion, THD – %
1.0
0.8
0.6
0.4
0.2
0
THD : VCC=2V
VIN=30mV
f=1kHz
RL=2.2kΩ
Cin=5pF
IDSS : VDS=2V
100
150
200
250
300
350
400
Drain Current, IDSS – μA
IT16237

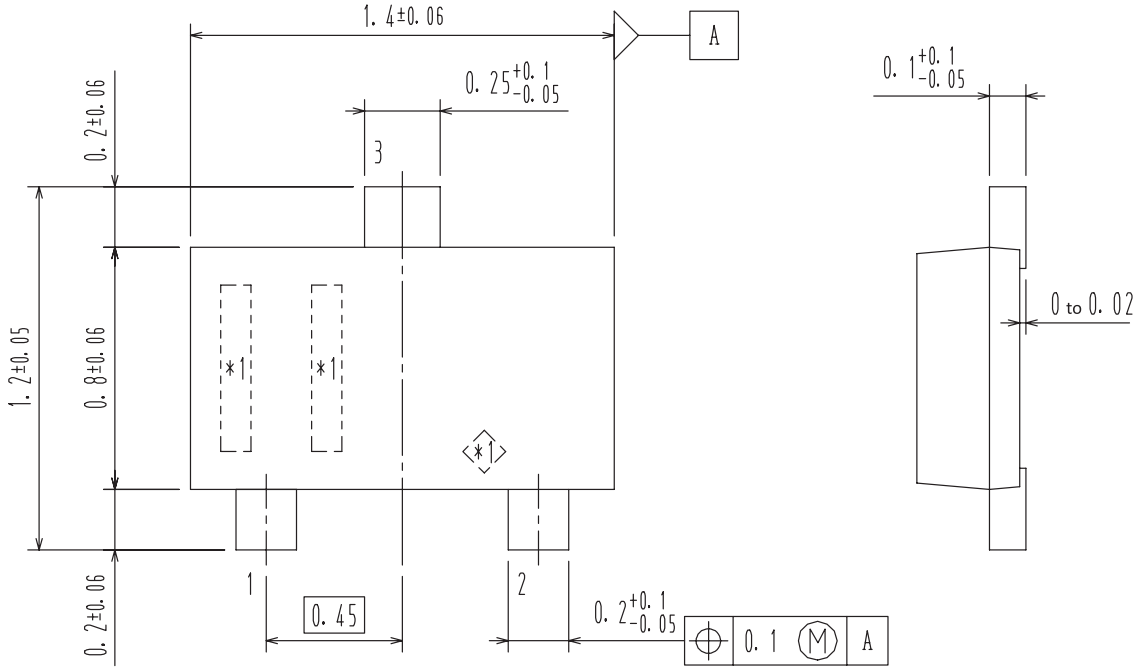

PD – Ta
Allowable Power Dissipation, PD – mW
120
100
80
60
40
20
0
0
20
40
60
80
100
120
140
160
Ambient Temperature, Ta – °C
IT16238

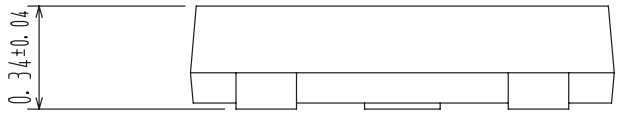
Package Dimensions

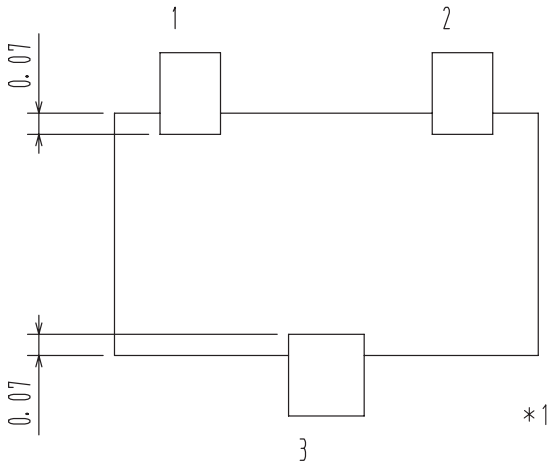
unit : mm

TF262TH-4-TL-H, TF262TH-5-TL-H

SOT-623 / VTFP
CASE 631AD
ISSUE O

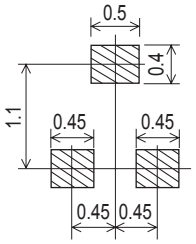






*1:Lot indication

Recommended Soldering Footprint



ORDERING INFORMATION

Device	Package	Shipping	memo
TF262TH-4-TL-H	SOT-623 / VTFP	8,000pcs. / Tape and Reel	Pb-Free and Halogen Free
TF262TH-5-TL-H			

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