

TOSHIBA TRANSISTOR SILICON N CHANNEL JUNCTION TYPE FET SILICON NPN  
EPITAXIAL TYPE TRANSISTOR

## HN3G01J

High Frequency Amplifier Applications  
AM High Frequency Amplifier Applications  
Audio Frequency Amplifier Applications

Unit in mm

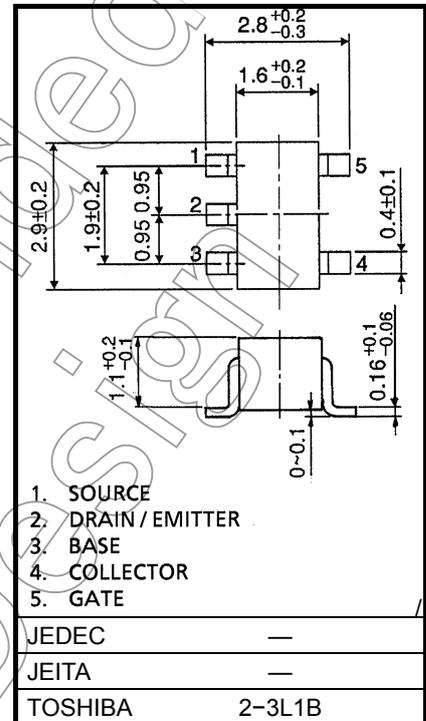
### Absolute Maximum Ratings (Ta = 25°C)

Q1: FET

CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	V <sub>GDS</sub>	-20	V
Gate Current	I <sub>G</sub>	10	mA

Q2: TRANSISTOR

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	50	V
Emitter-Base Voltage	V <sub>EB0</sub>	5	V
Collector Current	I <sub>C</sub>	150	mA
Base Current	I <sub>B</sub>	30	mA



Weight: 0.014 g (typ.)

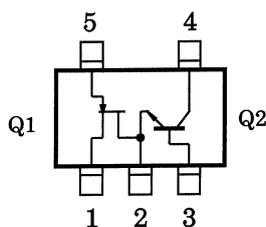
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

### Common Ratings

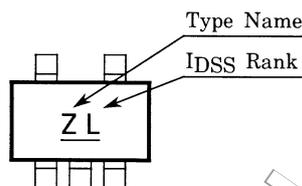
CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Dissipation	P*	200	mW
Junction Temperature	T <sub>j</sub>	125	°C
Storage Temperature Range	T <sub>stg</sub>	-55~125	°C

\*: Total Rating

## Pin Assignment (Top View)



## Marking



## Electrical Characteristics (Ta = 25°C)

Q1

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	$I_{GSS}$	$V_{GS} = -15V, V_{DS} = 0$	—	—	-1.0	nA
Gate-Drain Breakdown Voltage	$V_{(BR)GDS}$	$V_{DS} = 0, I_G = -100\mu A$	-20	—	—	V
Drain Current	$I_{DSS}$ (Note)	$V_{DS} = 5V, V_{GS} = 0$	6	—	32	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	$V_{DS} = 5V, I_D = 1\mu A$	—	—	-2.5	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 5V, V_{GS} = 0, f = 1kHz$	15	25	—	mS
Input Capacitance	$C_{iss}$	$V_{DS} = 5V, V_{GS} = 0, f = 1MHz$	—	7.5	10	pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DG} = 5V, I_D = 0, f = 1MHz$	—	2	3	pF

Note:  $I_{DSS}$  Classification

GR: 6~12mA, BL: 10~20mA, V: 16~32mA

(G)

(L)

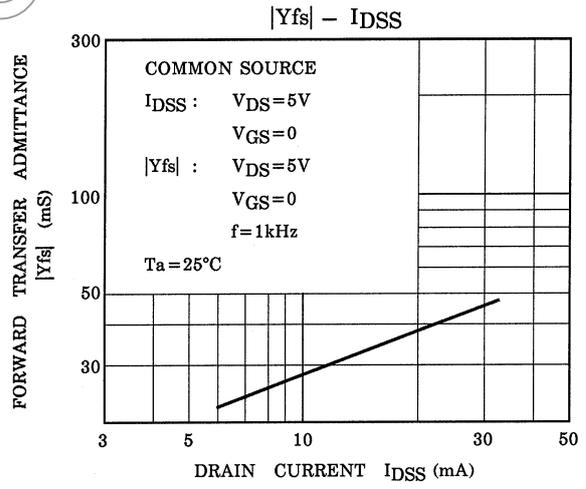
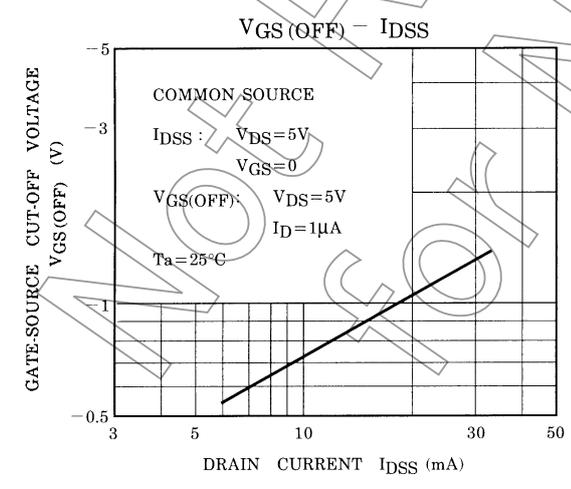
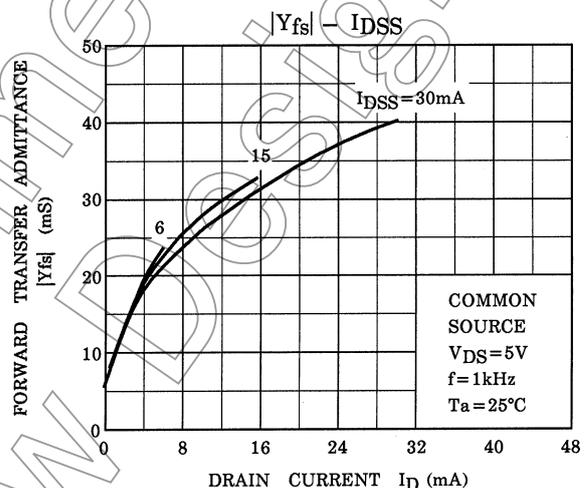
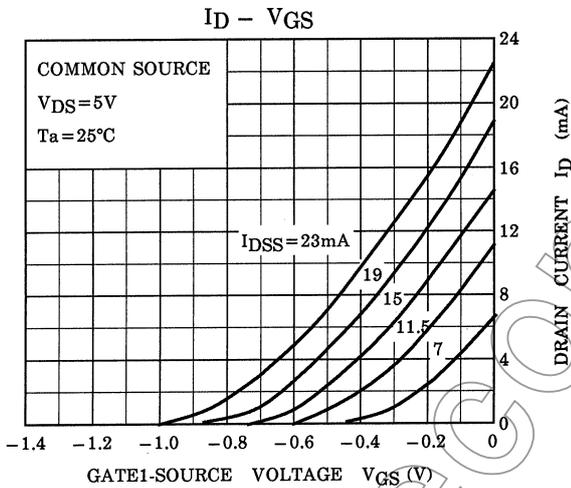
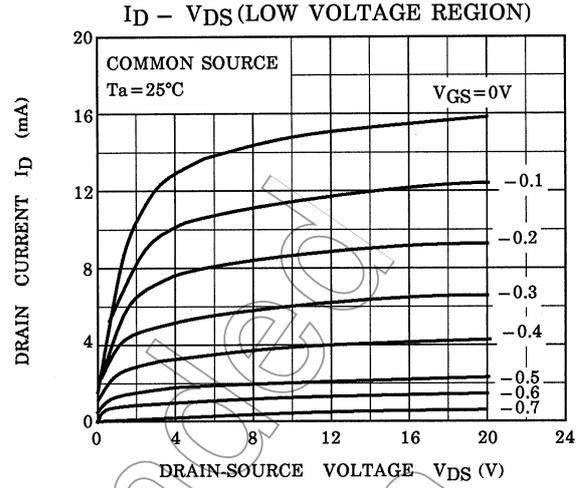
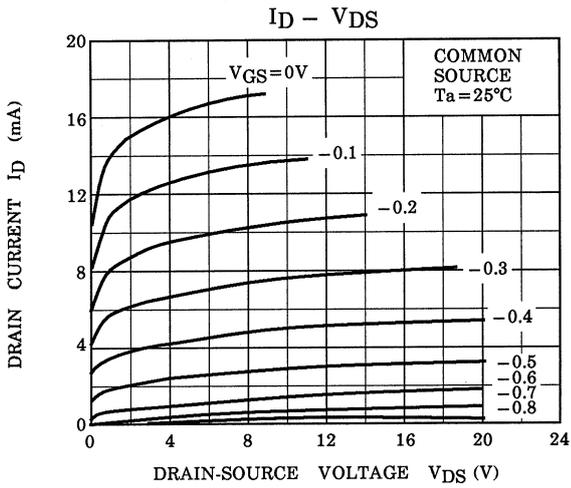
(V)

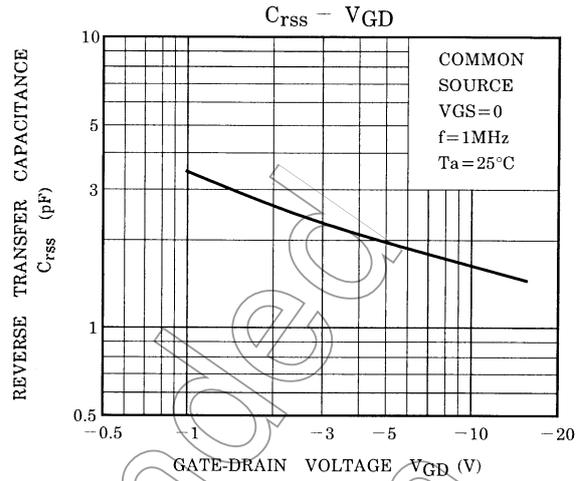
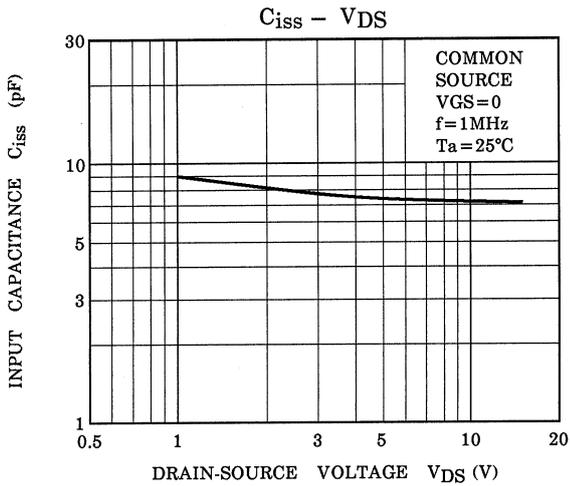
( ) ...  $I_{DSS}$  Rank Marking

Q2

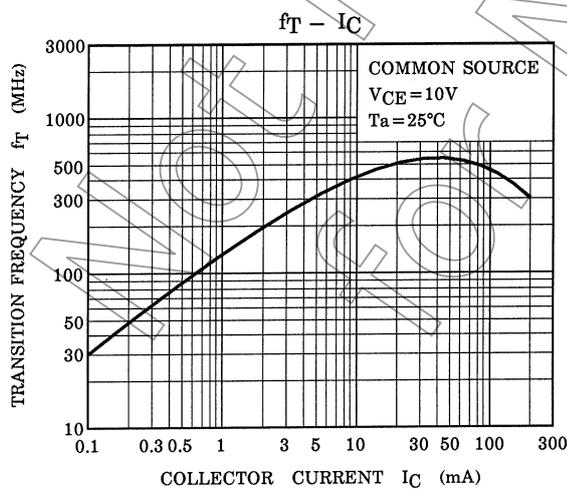
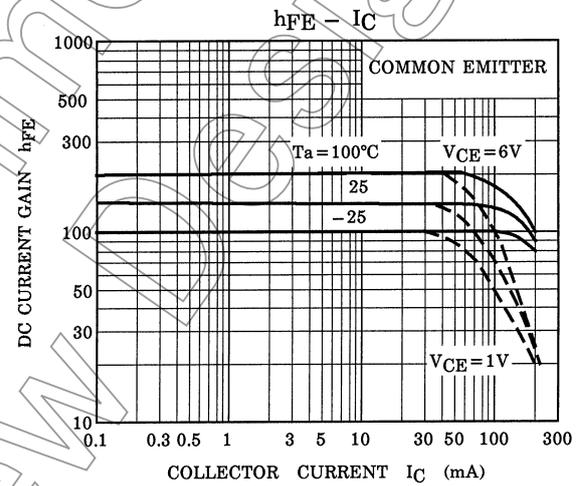
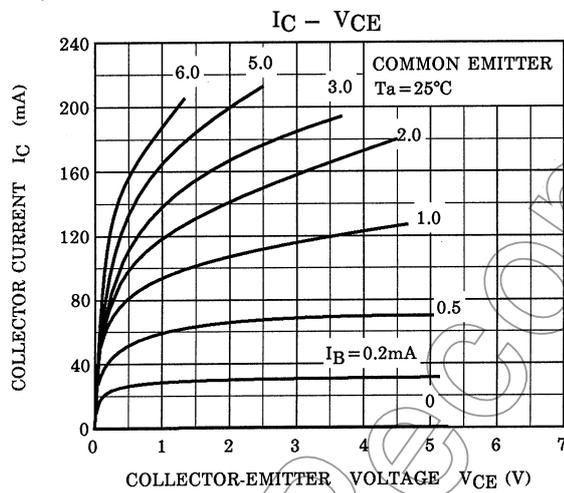
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$	—	—	0.1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	—	—	0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = 6V, I_C = 2mA$	120	—	400	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100mA, I_B = 10mA$	—	0.1	0.25	V
Transition Frequency	$f_T$	$V_{CE} = 10V, I_C = 1mA$	60	—	—	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	2.0	3.5	pF

\* Q1 CHARACTERISTICS

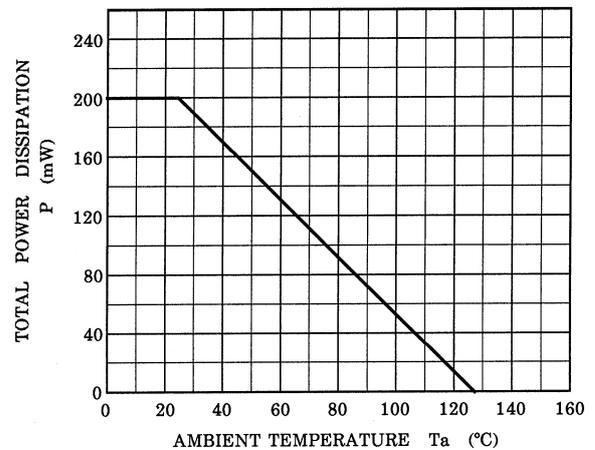




**\* Q2 CHARACTERISTIC**



**\* Q1, Q2 COMMON CHARACTERISTICS**



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