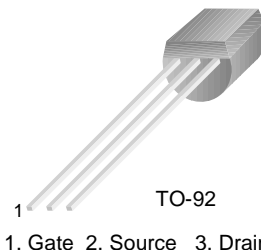


## TIS73/TIS74

### N-Channel General Purpose Amplifier

- This device is designed for low level analog switching, sample and hold circuits and chopper stabilized amplifiers.
- Sourced from process 54.



### Absolute Maximum Ratings \* $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{DG}$	Drain-Gate Voltage	30	V
$V_{GS}$	Gate-Source Voltage	-30	V
$I_{GF}$	Forward Gate Current	10	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 ~ +150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

1. These ratings are based on a maximum junction temperature of 150 degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Electrical Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = 1.0\mu\text{A}, V_{DS} = 0$	-30			V
$I_{GSS}$	Gate Reverse Current	$V_{GS} = 15\text{V}, V_{DS} = 0$ $V_{GS} = 15\text{V}, V_{DS} = 0, T_a = 100^\circ\text{C}$			-2.0 -5.0	nA $\mu\text{A}$
$I_{D(off)}$	Drain Cutoff Leakage Current	$V_{DS} = 15\text{V}, V_{GS} = -10\text{V}$ $V_{DS} = 15\text{V}, V_{GS} = -10\text{V},$ $T_a = 100^\circ\text{C}$			-2.0 -5.0	nA $\mu\text{A}$
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 15\text{V}, I_D = 4.0\text{nA}$	TIS73 -4.0 TIS74 -2.0		-10 -6.0	V V
<b>On Characteristics *</b>						
$I_{DSS}$	Zero-Gate Voltage Drain Current *	$V_{DS} = 15\text{V}, V_{GS} = 0$	TIS73 50 TIS74 20		100	mA mA
$r_{DS(on)}$	Drain-Source On Resistance	$V_{DS} \leq 0.1\text{V}, V_{GS} = 0$ $f = 1.0\text{KHz}$	TIS73 TIS74		25 40	$\Omega$ $\Omega$
<b>Small Signal Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS} = 0, V_{GS} = -10\text{V}, f = 1.0\text{MHz}$			18	pF
$C_{rss}$	Reverse Transfer Capacitance	$V_{DS} = 0, V_{GS} = -10\text{V}, f = 1.0\text{MHz}$			8.0	pF
<b>Switching Characteristics</b>						
$t_r$	Rise Time	$V_{GS(off)} = -10\text{V}, V_{GS(on)} = 0,$ $I_D = 20\text{mA}, V_{DS} = 10\text{V}$	TIS73 TIS74		3.0 4.0	ns ns
$t_{on}$	Turn-On Time	$V_{GS(off)} = -10\text{V}, V_{GS(on)} = 0,$ $I_D = 20\text{mA}, V_{DS} = 10\text{V}$			6.0	ns
$t_{off}$	Turn-Off Time	$V_{GS(off)} = -10\text{V}, V_{GS(on)} = 0,$ $I_D = 20\text{mA}, V_{DS} = 10\text{V}$	TIS73 TIS74		25 50	ns ns

\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 3.0\%$

**Thermal Characteristics**  $T_A=25^{\circ}\text{C}$  unless otherwise noted

Symbol	Parameter	Max.	Units
P <sub>D</sub>	Total Device Dissipation	350	mW
	Derate above 25°C	2.8	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	125	°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	357	°C/W

## Typical Characateristics

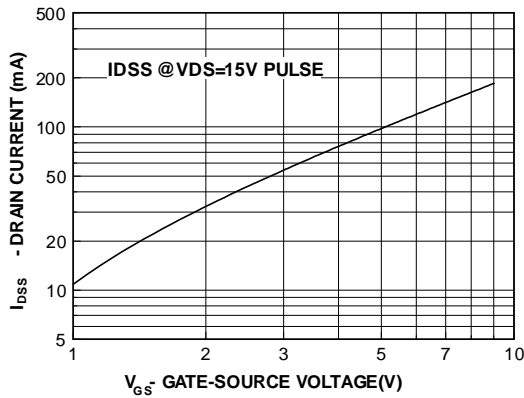


Figure 1. Transfer Characteristics

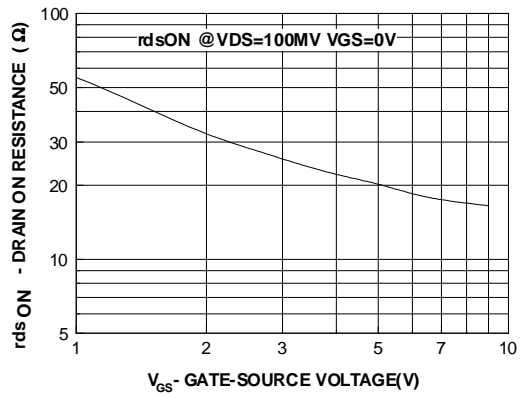


Figure 2. Transfer Characteristics

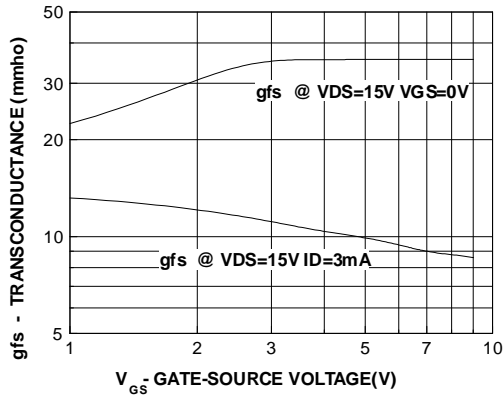


Figure 3. Transfer Characteristics

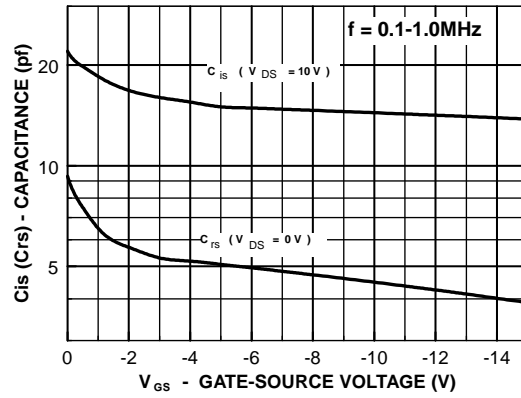


Figure 4. Capacitance vs Voltage

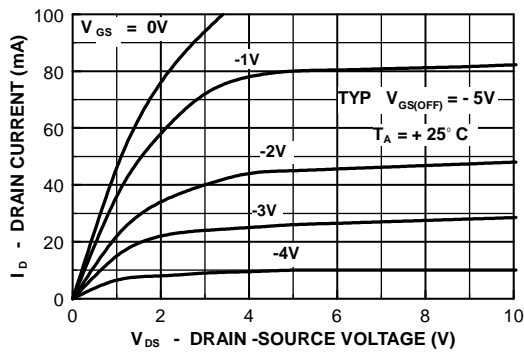


Figure 5. Common Drain-Source Characteristics

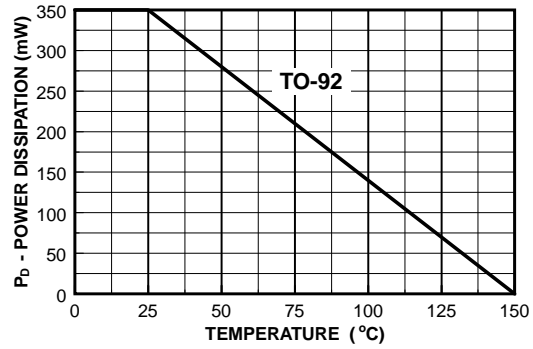
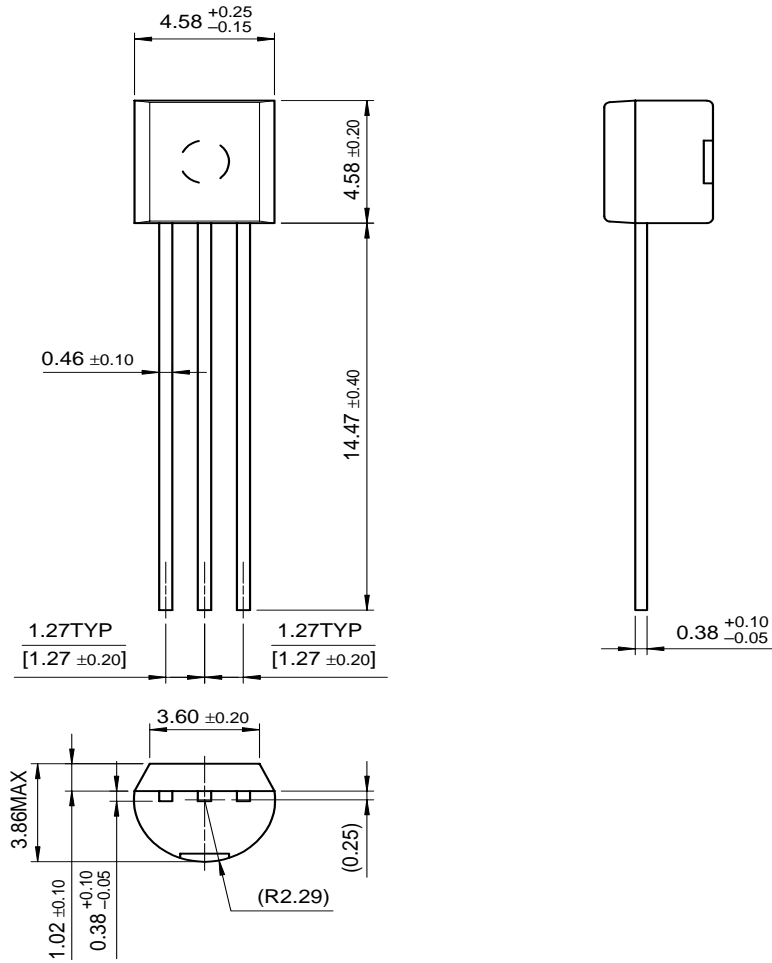


Figure 6. Power Dissipation vs Ambient Temperature

# Package Dimensions

TIS73/TIS74

## TO-92



Dimensions in Millimeters

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