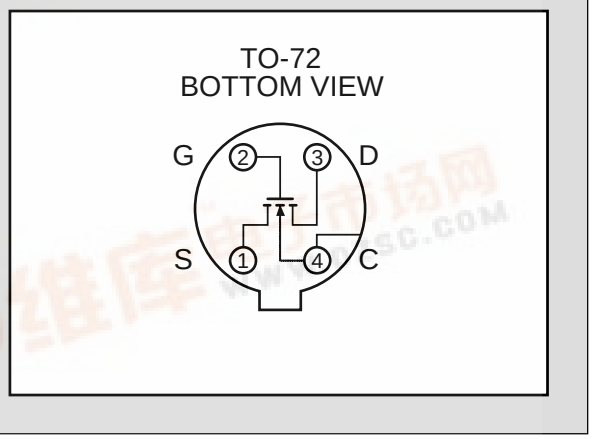
LINEAR SYSTEMS

Linear Integrated Systems

3N170 3N171

N-CHANNEL MOSFET ENHANCEMENT MODE

FEATURES	
Direct Replacement for INTERSIL 3N170 & 3N171	
LOW DRAIN TO SOURCE RESISTANCE	$r_{ds(on)} \leq 200\Omega$
FAST SWITCHING	$t_{d(on)} \leq 3.0$ns
ABSOLUTE MAXIMUM RATINGS[1] @ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature	-65 to +150 °C
Operating Junction Temperature	-55 to +135 °C
Maximum Power Dissipation	
Continuous Power Dissipation	300mW
Maximum Current	
Drain to Source	30mA
Maximum Voltages	
Drain to Gate	±35V
Drain to Source	25V
Gate to Source	±35V



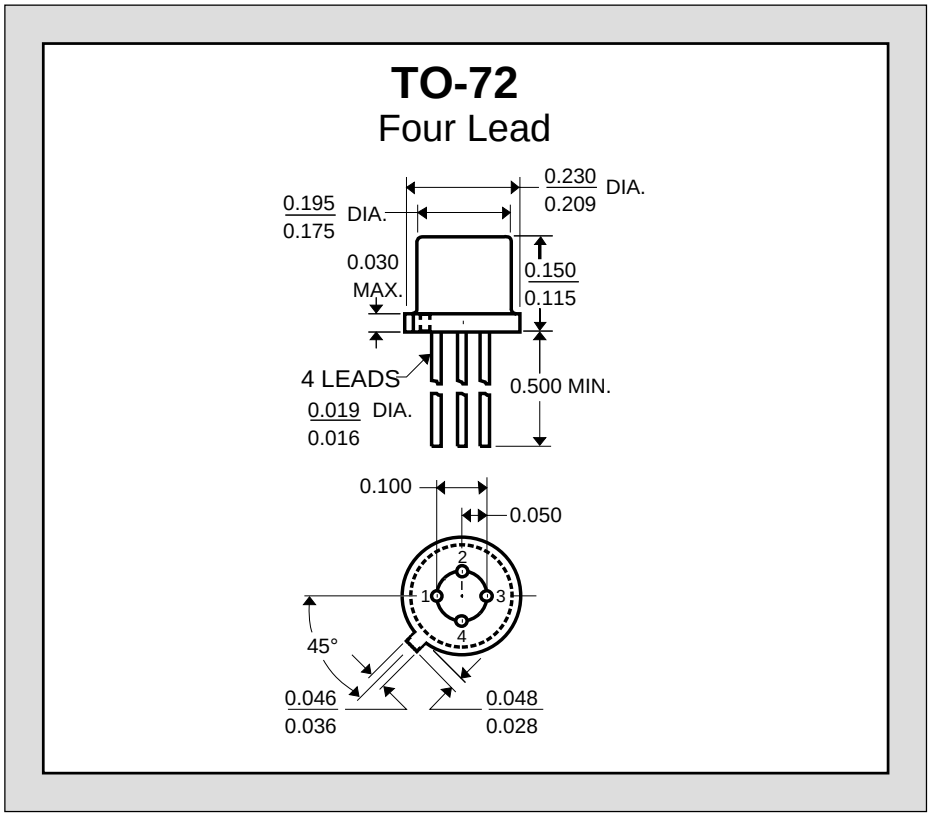
* Body tied to Case.

ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated) (V_{SB} = 0V unless otherwise stated)

SYMBOL	CHARACTERISTIC		MIN	TYP	MAX	UNITS	CONDITIONS
BV_{DSS}	Drain to Source Breakdown Voltage		25			V	I_D = 10µA, V_{GS} = 0V
$V_{DS(on)}$	Drain to Source "On" Voltage				2.0		I_D = 10mA, V_{GS} = 10V
$V_{GS(th)}$	Gate to Source Threshold Voltage	3N170	1.0		2.0		V_{DS} = 10V, I_D = 10µA
		3N171	1.5		2.0		
I_{GSS}	Gate Leakage Current				10	pA	V_{GS} = -35V, V_{DS} = 0V
I_{DSS}	Drain Leakage Current "Off"				10	nA	V_{DS} = 10V, V_{GS} = 0V
$I_{D(on)}$	Drain Current "On"		10			mA	V_{GS} = 10V, V_{DS} = 10V
g_{fs}	Forward Transconductance		1000			µS	V_{DS} = 10V, I_D = 2.0mA, f = 1.0kHz
$r_{ds(on)}$	Drain to Source "On" Resistance				200	Ω	V_{GS} = 10V, I_D = 0A, f = 1.0kHz
C_{rss}	Reverse Transfer Capacitance				1.3	pF	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
C_{iss}	Input Capacitance				5.0		V_{DS} = 10V, V_{GS} = 0V, f = 1.0MHz
C_{db}	Drain to Body Capacitance				5.0		V_{DB} = 10V, f = 1.0MHz

SWITCHING CHARACTERISTICS

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$t_{d(on)}$	Turn On Delay Time			3.0	ns	V_{DD} = 10V, $I_{D(on)}$ = 10mA, $V_{GS(on)}$ = 10V, $V_{GS(off)}$ = 0V, R_G = 50Ω
t_r	Turn On Rise Time			10		
$t_{d(off)}$	Turn Off Delay Time			3.0		
t_f	Turn Off Fall Time			15		



1. Absolute maximum ratings are limiting values above which serviceability may be impaired.