

LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

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 $t_{d(on)} \leq 3.0ns$

ABSOLUTE MAXIMUM RATINGS¹

@ 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

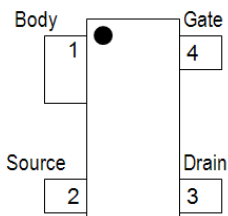
Drain to Gate $\pm 35V$

Drain to Source 25V

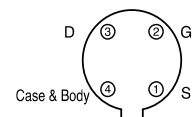
Gate to Source $\pm 35V$

3N170, 171 3N170, 171

SOT-143
TOP VIEW



TO-72
TOP VIEW

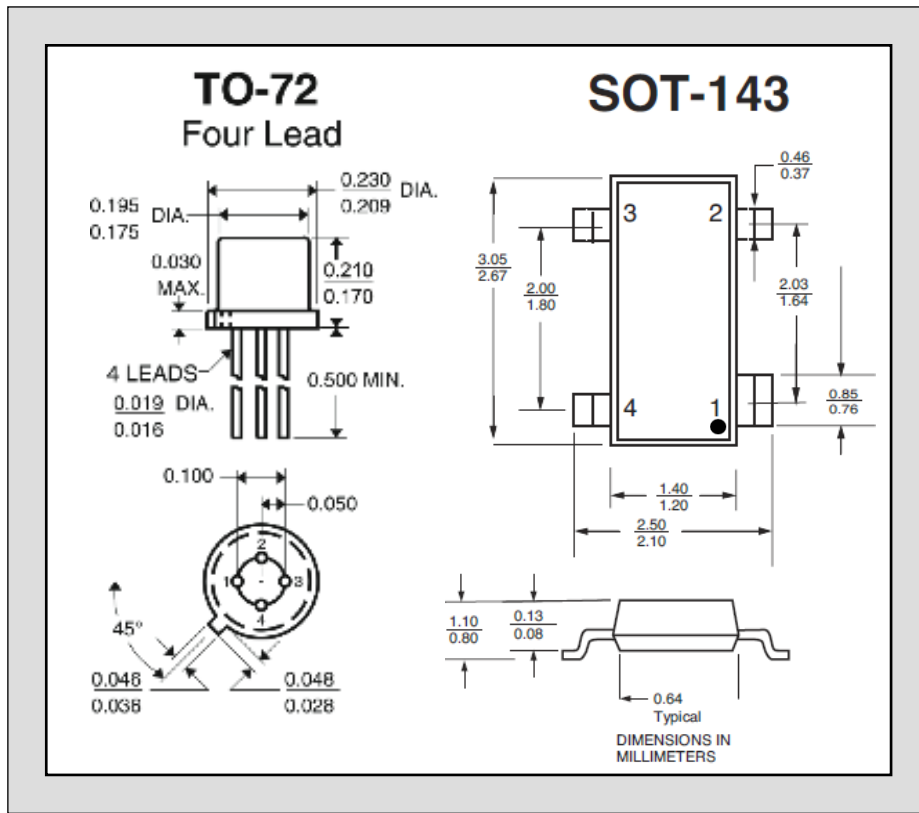


ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated) ($V_{SB} = 0V$ unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
BV_{DSS}	Drain to Source Breakdown Voltage	25			V	$I_D = 10\mu A, V_{GS} = 0V$
$V_{DS(on)}$	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		$V_{DS} = 10V, I_D = 10\mu A$
		3N171	1.5	3.0		
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	$V_{GS} = 10V, I_D = 100\mu A, f = 1.0kHz$
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	$V_{DD} = 10V, I_{D(on)} = 10mA,$ $V_{GS(on)} = 10V, V_{GS(off)} = 0V$ $R_G = 50\Omega$
t_r	Turn On Rise Time			10		
$t_{d(off)}$	Turn Off Delay Time			3.0		
t_f	Turn Off Fall Time			15		



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