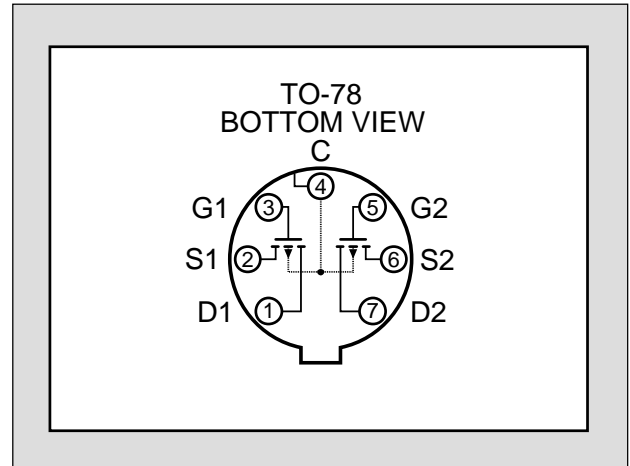


3N190 3N191

P-CHANNEL DUAL MOSFET ENHANCEMENT MODE

FEATURES	
DIRECT REPLACEMENT FOR INTERSIL 3N190 & 3N191	
LOW GATE LEAKAGE CURRENT	$I_{GSS} \leq \pm 10\text{pA}$
LOW TRANSFER CAPACITANCE	$C_{rss} \leq 1.0\text{pF}$
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 One Side	300mW
Continuous Power Dissipation Both Sides	525mW
Maximum Current	
Drain to Source ²	50mA
Maximum Voltages	
Drain to Gate ²	30V
Drain to Source ²	30V
Transient Gate to Source ^{2,3}	$\pm 125\text{V}$
Gate to Gate	$\pm 80\text{V}$



MATCHING CHARACTERISTICS @ 25 °C (unless otherwise stated) ($V_{BS} = 0\text{V}$ unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
g_{fs1}/g_{fs2}	Forward Transconductance Ratio	0.85		1.0		$V_{DS} = -15\text{V}$, $I_D = -500\mu\text{A}$, $f = 1\text{kHz}$
V_{GS1-2}	Gate to Source Threshold Voltage Differential			100	mV	$V_{DS} = -15\text{V}$, $I_D = -500\mu\text{A}$
$\frac{\Delta V_{GS1-2}}{\Delta T}$	Gate to Source Threshold Voltage Differential with Temperature ⁴			100	$\mu\text{V}/^\circ\text{C}$	$V_{DS} = -15\text{V}$, $I_D = -500\mu\text{A}$ $T_S = -55 \text{ TO } +25 \text{ }^\circ\text{C}$
$\frac{\Delta V_{GS1-2}}{\Delta T}$	Gate to Source Threshold Voltage Differential with Temperature ⁴			100		$V_{DS} = -15\text{V}$, $I_D = -500\mu\text{A}$ $T_S = +25 \text{ TO } +125 \text{ }^\circ\text{C}$

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

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
BV_{DSS}	Drain to Source Breakdown Voltage	-40			V	$I_D = -10\mu\text{A}$
BV_{SDS}	Source to Drain Breakdown Voltage	-40				$I_S = -10\mu\text{A}$, $V_{BD} = 0\text{V}$
V_{GS}	Gate to Source Voltage	-3.0		-6.5		$V_{DS} = -15\text{V}$, $I_D = -500\mu\text{A}$
$V_{GS(th)}$	Gate to Source Threshold Voltage	-2.0		-5.0		$V_{DS} = V_{GS}$, $I_D = -10\mu\text{A}$
		-2.0		-5.0		$V_{DS} = -15\text{V}$, $I_D = -500\mu\text{A}$
I_{GSSR}	Reverse Gate Leakage Current			10	pA	$V_{GS} = 40\text{V}$
I_{GSSF}	Forward Gate Leakage Current			-10		$V_{GS} = -40\text{V}$
I_{DSS}	Drain Leakage Current "Off"			-200		$V_{DS} = -15\text{V}$
I_{SDS}	Source to Drain Leakage Current "Off"			-400		$V_{SD} = -15\text{V}$, $V_{DB} = 0\text{V}$
$I_{D(on)}$	Drain Current "On"	-5.0		-30.0		mA

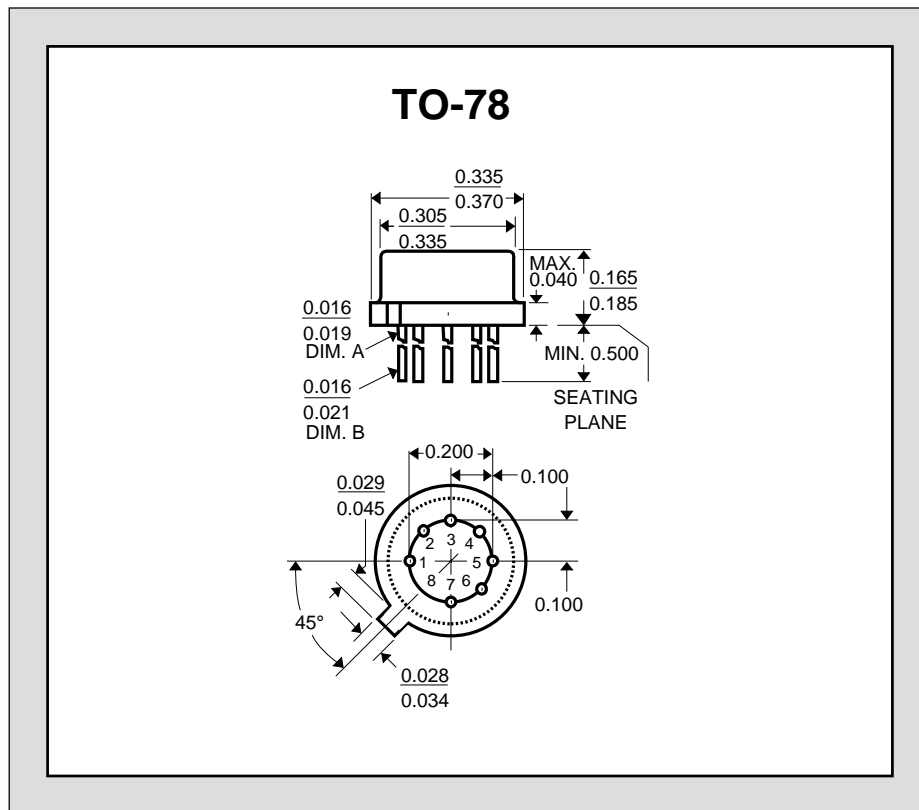
ELECTRICAL CHARACTERISTICS CONT. @ 25 °C (unless otherwise stated) ($V_{SB} = 0V$ unless otherwise stated)

SYMBOL					
g_{fs}	Forward Transconductance ⁵	1500		4000	μS
Y_{os}	Output Admittance			300	
$r_{ds(on)}$	Drain to Source "On" Resistance			300	Ω
C_{rss}	Reverse Transfer Capacitance			1.0	pF
C_{iss}	Input Capacitance Output Shorted			4.5	
C_{oss}	Output Capacitance Input Shorted			3.0	

$V_{DS} = -15V, I_D = -5mA, f = 1kHz$
 $V_{DS} = -20V, I_D = -100\mu A$
 $V_{DS} = -15V, I_D = -5mA, f = 1MHz$

SWITCHING CHARACTERISTICS

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$t_{d(on)}$	Turn On Delay Time			15	ns	$V_{DD} = -15V, I_{D(on)} = -5mA,$ $R_G = R_L = 1.4k\Omega$
t_r	Turn On Rise Time			30		
t_{off}	Turn Off Time			50		



1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Per transistor.
3. Approximately doubles for every 10 °C increase in T_A .
4. Pulse: $t = 300\mu s$, Duty Cycle $\leq 3\%$
5. Measured at end points, T_A and T_B .

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