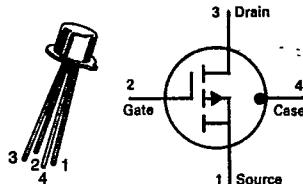


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## 3N155

### CASE 20-03, STYLE 2 TO-72 (TO-206AF)



### MOSFET SWITCHING

#### P-CHANNEL — ENHANCEMENT

Refer to 3N157 for graphs.

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#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	$\pm 35$	Vdc
Drain-Gate Voltage	$V_{DG}$	$\pm 50$	Vdc
Gate-Source Voltage	$V_{GS}$	$\pm 50$	Vdc
Drain Current	$I_D$	30	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300 2.0	mW $\text{mW}/^\circ\text{C}$
Junction Temperature Range	$T_J$	-65 to +175	°C
Storage Channel Temperature Range	$T_{stg}$	-65 to +175	°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit	
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage ( $I_D = -10 \mu\text{Adc}, V_G = V_S = 0$ )	$V_{(\text{BR})\text{DSX}}$	-35	—	—	Vdc	
Zero-Gate-Voltage Drain Current ( $V_{DS} = -10 \text{ Vdc}, V_{GS} = 0$ ) ( $V_{DS} = -10 \text{ Vdc}, V_{GS} = 0, T_A = 125^\circ\text{C}$ )	$I_{DSS}$	—	—	-1.0 -1000	nAdc	
Gate Reverse Current ( $V_{GS} = +50 \text{ Vdc}, V_{DS} = 0$ ) ( $V_{GS} = +25 \text{ Vdc}, V_{DS} = 0$ )	$I_{GSS}$	—	—	+1000 +10	pAdc	
Resistance Drain Source ( $I_D = 0, V_{GS} = 0$ )	$r_{DS(\text{off})}$	$1 \times 10^{+10}$	—	—	Ohms	
Resistance Gate Source Input ( $V_{GS} = -25 \text{ Vdc}$ )	$r_{GS}$	—	$1 \times 10^{+16}$	—	Ohms	
Gate Forward Leakage Current ( $V_{GS} = -50 \text{ Vdc}, V_{DS} = 0$ ) ( $V_{GS} = -25 \text{ Vdc}, V_{DS} = 0$ )	$I_{G(f)}$	—	—	-1000 -10	pAdc	
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage ( $V_{DS} = -10 \text{ Vdc}, I_D = -10 \mu\text{Adc}$ )	3N155	$V_{GS(\text{Th})}$	-1.5	—	-3.2	Vdc
Drain-Source On-Voltage ( $I_D = -2.0 \text{ mAdc}, V_{GS} = -10 \text{ Vdc}$ )	$V_{DS(\text{on})}$	—	—	-1.0	Vdc	
Static Drain-Source On Resistance ( $I_D = 0 \text{ mA}, V_{GS} = -10 \text{ Vdc}$ )	$r_{DS(\text{on})}$	—	—	600	Ohms	
On-State Drain Current ( $V_{DS} = -15 \text{ Vdc}, V_{GS} = -10 \text{ Vdc}$ )	$I_{D(\text{on})}$	-5.0	—	—	mAdc	
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Drain-Source Resistance ( $V_{GS} = -10 \text{ Vdc}, I_D = 0, f = 1.0 \text{ kHz}$ ) ( $V_{GS} = -15 \text{ Vdc}, I_D = 0, f = 1.0 \text{ kHz}$ )	$r_{ds(\text{on})}$	—	—	400 350	Ohms	
Forward Transfer Admittance ( $V_{DS} = -15 \text{ Vdc}, I_D = -2.0 \text{ mA}, f = 1.0 \text{ kHz}$ )	$ Y_{fs} $	1000	—	4000	$\mu\text{mhos}$	
Input Capacitance ( $V_{DS} = -15 \text{ Vdc}, V_{GS} = -10 \text{ Vdc}, f = 140 \text{ kHz}$ )	$C_{iss}$	—	—	5.0	pF	
Reverse Transfer Capacitance ( $V_{DS} = 0, V_{GS} = 0, f = 140 \text{ kHz}$ )	$C_{rss}$	—	—	1.3	pF	
Drain-Substrate Capacitance ( $V_{D(SUB)} = -10 \text{ Vdc}, f = 140 \text{ kHz}$ )	$C_{d(\text{sub})}$	—	—	4.0	pF	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay	$(V_{DD} = -10 \text{ Vdc}, I_{D(\text{on})} = -2.0 \text{ mA}, V_{GS(\text{on})} = -10 \text{ Vdc}, V_{GS(\text{off})} = 0)$	$t_d$	—	—	45	$\mu\text{s}$
Rise Time		$t_r$	—	—	65	ns
Turn-Off Delay		$t_s$	—	—	60	ns
Fall Time		$t_f$	—	—	100	ns

MOTOROLA SMALL-SIGNAL TRANSISTORS, FETs AND DIODES