

**2N3796**  
**2N3797**

**CASE 22-03, STYLE 2**  
**TO-18 (TO-206AA)**

**MOSFETs**  
**LOW POWER AUDIO**

**N-CHANNEL — DEPLETION**

**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	25 20	Vdc
Gate-Source Voltage	$V_{GS}$	$\pm 10$	Vdc
Drain Current	$I_D$	20	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	200 1.14	mW mW/ $^\circ\text{C}$
Junction Temperature Range	$T_J$	+175	$^\circ\text{C}$
Storage Channel Temperature Range	$T_{stg}$	-65 to +200	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
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**OFF CHARACTERISTICS**

Drain-Source Breakdown Voltage ( $V_{GS} = -4.0\text{ V}, I_D = 5.0\ \mu\text{A}$ ) ( $V_{GS} = -7.0\text{ V}, I_D = 5.0\ \mu\text{A}$ )	$V_{(BR)DSX}$	25 20	30 25	— —	Vdc
Gate Reverse Current(1) ( $V_{GS} = -10\text{ V}, V_{DS} = 0$ ) ( $V_{GS} = -10\text{ V}, V_{DS} = 0, T_A = 150^\circ\text{C}$ )	$I_{GSS}$	— —	— —	1.0 200	pAdc
Gate Source Cutoff Voltage ( $I_D = 0.5\ \mu\text{A}, V_{DS} = 10\text{ V}$ ) ( $I_D = 2.0\ \mu\text{A}, V_{DS} = 10\text{ V}$ )	$V_{GS(off)}$	— —	-3.0 -5.0	-4.0 -7.0	Vdc
Drain-Gate Reverse Current(1) ( $V_{DG} = 10\text{ V}, I_S = 0$ )	$I_{DGO}$	—	—	1.0	pAdc

**ON CHARACTERISTICS**

Zero-Gate-Voltage Drain Current ( $V_{DS} = 10\text{ V}, V_{GS} = 0$ )	$I_{DSS}$	0.5 2.0	1.5 2.9	3.0 6.0	mAdc
On-State Drain Current ( $V_{DS} = 10\text{ V}, V_{GS} = +3.5\text{ V}$ )	$I_{D(on)}$	7.0 9.0	8.3 14	14 18	mAdc

**SMALL-SIGNAL CHARACTERISTICS**

Forward Transfer Admittance ( $V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1.0\text{ kHz}$ )  ( $V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1.0\text{ MHz}$ )	$ y_{fs} $	900 1500	1200 2300	1800 3000	$\mu\text{mhos}$
Output Admittance ( $V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1.0\text{ kHz}$ )	$ y_{os} $	— —	12 27	25 60	$\mu\text{mhos}$
Input Capacitance ( $V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1.0\text{ MHz}$ )	$C_{iss}$	—	5.0 6.0	7.0 8.0	pF
Reverse Transfer Capacitance ( $V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1.0\text{ MHz}$ )	$C_{rss}$	—	0.5	0.8	pF

**FUNCTIONAL CHARACTERISTICS**

Noise Figure ( $V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1.0\text{ kHz}, R_S = 3\text{ megohms}$ )	NF	—	3.8	—	dB
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(1) This value of current includes both the FET leakage current as well as the leakage current associated with the test socket and fixture when measured under best attainable conditions.

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TYPICAL DRAIN CHARACTERISTICS

FIGURE 1 — 2N3796

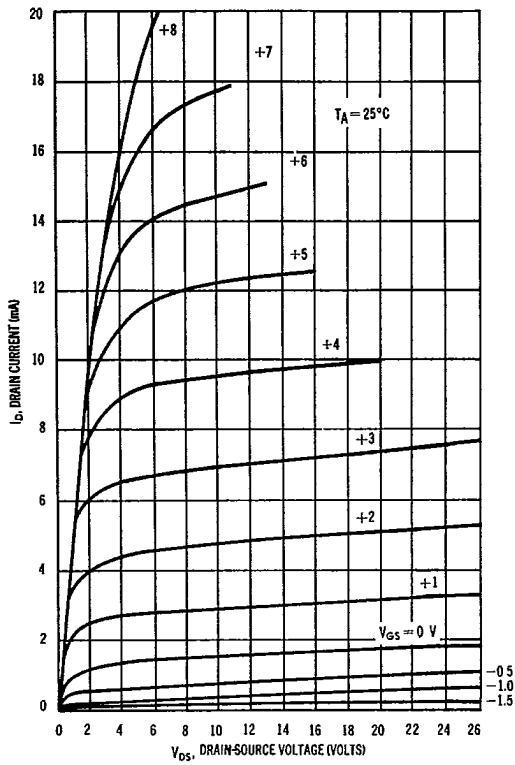
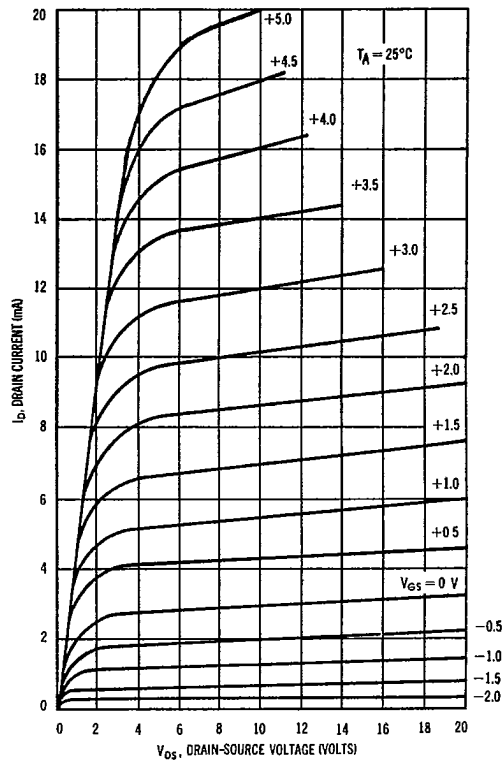


FIGURE 2 — 2N3797



COMMON SOURCE TRANSFER CHARACTERISTICS

FIGURE 3 — 2N3796

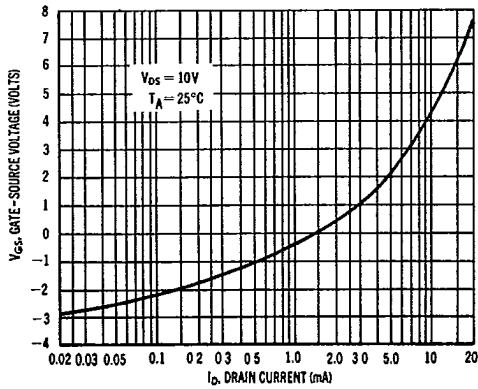
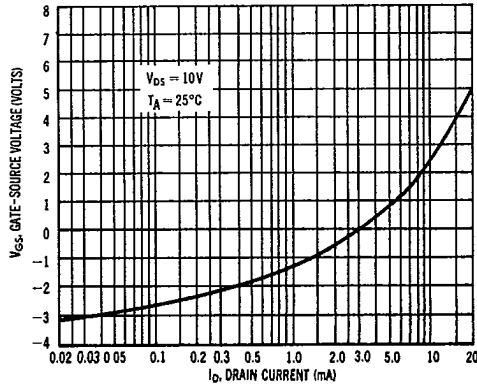


FIGURE 4 — 2N3797



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FIGURE 5 — FORWARD TRANSFER ADMITTANCE

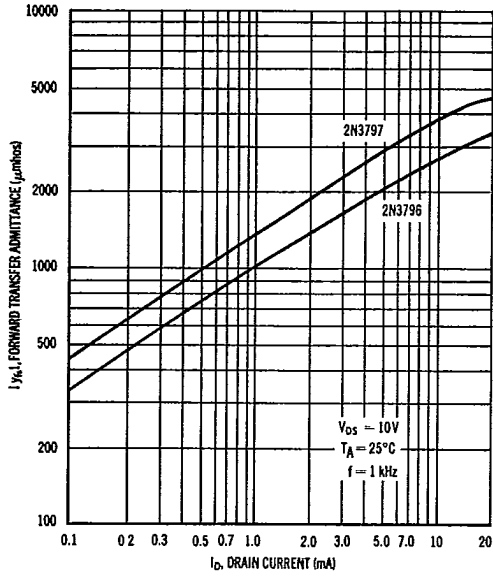
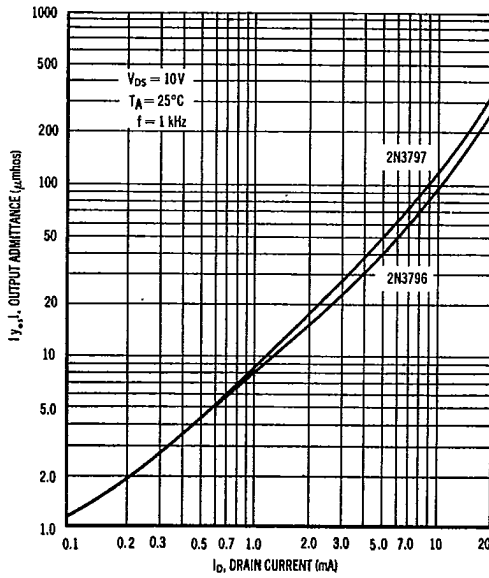


FIGURE 6 — OUTPUT ADMITTANCE



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FIGURE 7 — NOISE FIGURE

