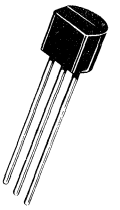
2N5797 (SILICON) thru 2N5800

SILICON P-CHANNEL JUNCTION FIELD-EFFECT TRANSISTORS

Symmetrical depletion mode Junction Field-Effect Transistors designed primarily for low-power, audio amplifier applications.

- Low Reverse Transfer Capacitance — C_{rss} = 1.0 pF (Max)
- Drain and Source Interchangeable
- Low Gate Reverse Current — I_{GSS} = 1.0 nAdc (Max)
- Unibloc Plastic Package Encapsulation

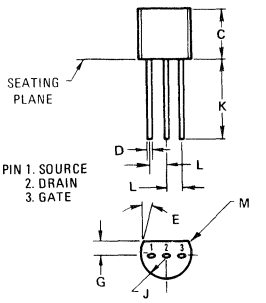
P-CHANNEL JUNCTION FIELD-EFFECT TRANSISTORS



***MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	Vdc
Drain-Gate Voltage	V_{DG}	40	Vdc
Reverse Gate-Source Voltage	V_{GSR}	40	Vdc
Forward Gate Current	I_{GF}	10	mAdc
Total Device Dissipation @ $T_C = 25^oC$ Derate above 25^oC	P_D	350 2.8	mW $mW/^oC$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150	^oC

*Indicates JEDEC Registered Data.



	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
C	0.175	0.185	4.450	4.700
D	0.016	0.019	0.407	0.482
E	5^o NOM		5^o NOM	
G	0.045	0.055	1.150	1.390
J	0.085	0.095	2.160	2.420
K	0.500	—	12.700	—
L	0.050 TP		1.270 TP	
M	0.003	0.013	0.076	0.330

CASE 29-01
TO-92

*ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTIC					
Gate-Source Breakdown Voltage (I_G = 10 μAdc, V_{DS} = 0)		$V_{(BR)GSS}$	40	–	Vdc
Gate-Source Cutoff Voltage (V_{DS} = -15 Vdc, I_D = -10 μAdc)	2N5797	$V_{GS(off)}$	0.5	4.0	Vdc
	2N5798		0.8	6.0	
	2N5799		1.2	8.0	
	2N5800		2.0	9.0	
Gate Reverse Current		I_{GSS}			
(V_{GS} = 20 Vdc, V_{DS} = 0)			–	1.0	nAdc
(V_{GS} = 20 Vdc, V_{DS} = 0, T_A = 100°C)			–	1.0	μAdc
ON CHARACTERISTICS					
Zero Gate Voltage Drain Current (V_{DS} = -15 Vdc, V_{GS} = 0)	2N5797	I_{DSS}	0.02	0.1	mAdc
	2N5798		0.08	0.4	
	2N5799		0.25	1.0	
	2N5800		0.70	2.0	
SMALL-SIGNAL CHARACTERISTICS					
Forward Transfer Admittance (1) (V_{DS} = -15 Vdc, V_{GS} = 0, f = 1.0 kHz)	2N5797	$\lvert y_{fs} \rvert$	60	225	mmhos
	2N5798		100	400	
	2N5799		160	500	
	2N5800		250	700	
Output Admittance (1) (V_{DS} = -15 Vdc, V_{GS} = 0, f = 1.0 kHz)	2N5797	$\lvert y_{os} \rvert$	–	1.0	μmhos
	2N5798		–	2.5	
	2N5799		–	5.0	
	2N5800		–	10	
Input Capacitance (V_{DS} = -15 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{iss}	–	5.0	pF
Reverse Transfer Capacitance (V_{DS} = -15 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{rss}	–	1.0	pF
Common-Source Noise Figure (V_{DS} = -15 Vdc, V_{GS} = 0, R_S = 1.0 Megohm, f = 1.0 kHz, BW = 1.0 Hz)		NF	–	2.5	dB
Equivalent Short-Circuit Input Noise Voltage (V_{DS} = -15 Vdc, V_{GS} = 0, f = 1.0 kHz, BW = 1.0 Hz)		e_n	–	110	$nV/\sqrt{Hz}$

*Indicates JEDEC Registered Data.

(1) Pulse Test: Pulse Width = 360 ms, Duty Cycle = 2.0%.

TYPICAL SMALL-SIGNAL CHARACTERISTICS

FIGURE 1 – FORWARD TRANSFER ADMITTANCE

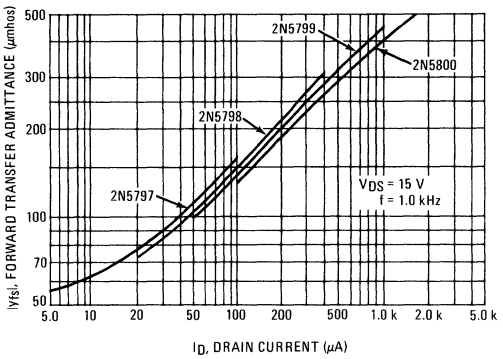
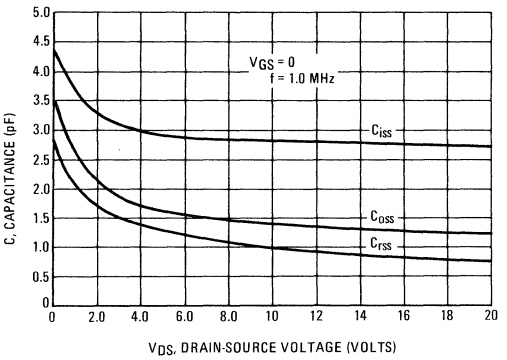


FIGURE 2 – CAPACITANCE



TYPICAL NOISE FIGURE

FIGURE 3 – EFFECTS OF FREQUENCY

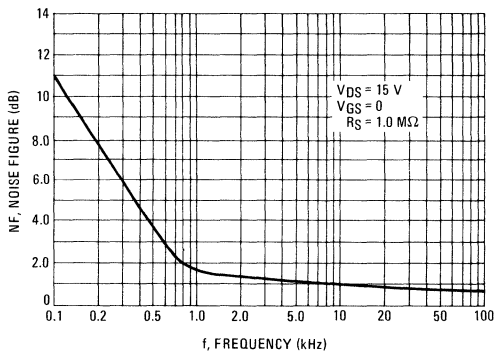


FIGURE 4 – EFFECTS OF SOURCE RESISTANCE

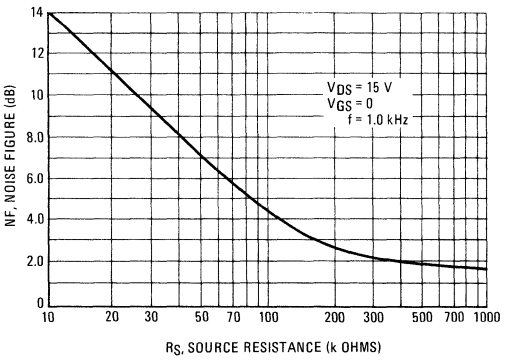
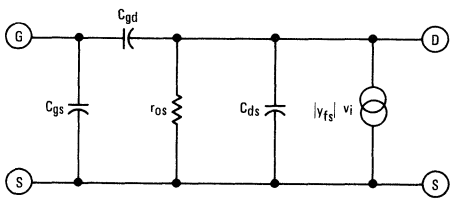


FIGURE 5 – LOW FREQUENCY CIRCUIT MODEL



$y_{is} = j\omega C_{iss}$
$y_{os} = 1/r_{oss} + j\omega C_{oss}$
$y_{fs} = |y_{fs}|$
$y_{rs} = -j\omega C_{rss}$

$C_{iss} = C_{gd} + C_{gs}$
$C_{rss} = C_{gd}$
$C_{oss} = C_{gd} + C_{ds}$

TYPICAL LIMIT TRANSFER CHARACTERISTICS
(TEMPERATURES NOTED ARE T_J)

FIGURE 6 – 2N5797

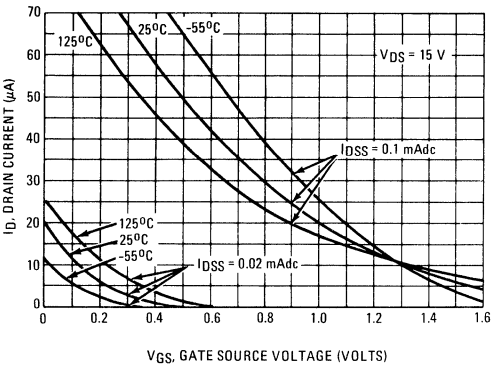


FIGURE 7 – 2N5798

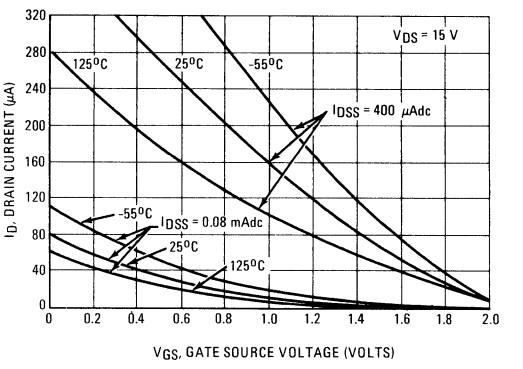


FIGURE 8 – 2N5799

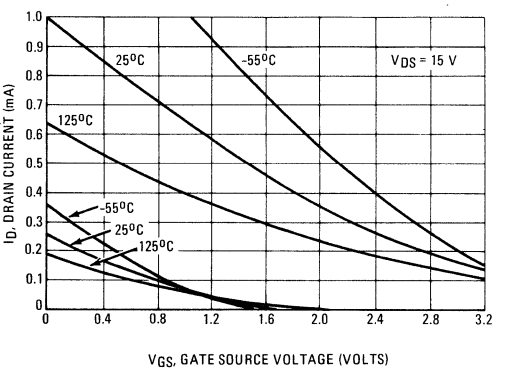
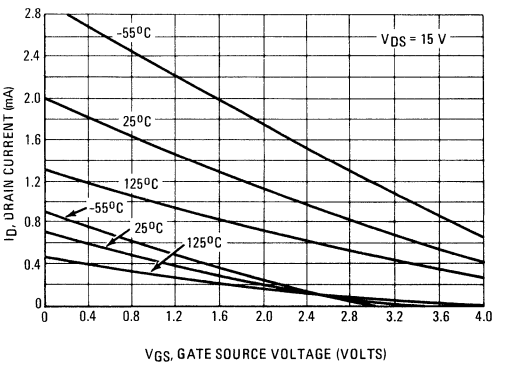


FIGURE 9 – 2N5800



2N5829

For Specifications, See 2N4957 Data, Volume I.