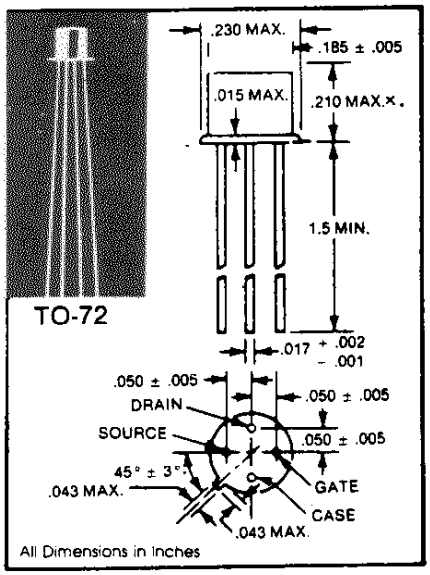
CRYSTALONICS

Web site: WWW.Crystalonics.com **Phone:** (631-981-6140) **Fax:** (631-585-4858)

* See price list for ordering information

ULTRA LOW NOISE
SILICON EPITAXIAL JUNCTION
N-CHANNEL FIELD EFFECT TRANSISTOR

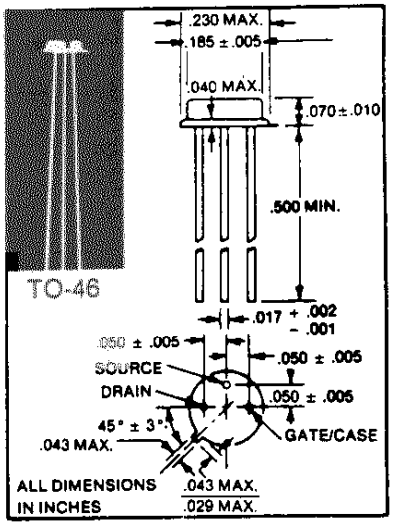
2N6550
CM860



CM860

GEOMETRY 424

The 2N6550/CM860 is a high, g_m/I_D low noise junction F.E.T. for low level amplifier use. The min. g_m of 25,000 μmho assures a voltage gain of 25 min. with a 1K drain load. As a source follower, it has typical output impedance of 25 ohms. The 10mA operating point is easily held due to its low pinch-off voltage and is very close to its zero T.C. point for temperature stable operation.



The CM860 is in the four lead, TO-72 package which isolates all elements from the case, reducing stray capacitance and allowing the engineer greater design freedom.

ELECTRICAL DATA ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	2N6550	UNITS
Drain to Source Voltage	BV_{DSO}	20	Volts
Drain to Gate Voltage	BV_{DGO}	20	Volts
Gate to Source Voltage	BV_{GSO}	20	Volts
D.C. Forward Gate Current	I_{GF}	50	mA
Junction Temp. (Operating & Storage)	T_J	-65°C to +200°C	
Power Dissipation (Free Air)	P_D	400 mW	
Lead Temp. (@ 1/16" ± 1/32" from case)	T_L	240°C for 10 sec.	
Derating Factor (Free Air)	D_F	2.3 mW/°C	

ELECTRICAL CHARACTERISTICS: T_A = 25°C (UNLESS OTHERWISE STATED)

PARAMETER	SYMBOL	CONDITION	2N6550			UNITS
			Min	Typ.	Max.	
Gate Leakage Current	I_{GSS}	V_{GS} = -10V, V_{DS} = 0		0.1	3.0	nA
Gate Leakage Current	I_{GSS}	V_{GS} = -10V, V_{DS} = 0, T_A = 85°C		5	100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 10V, V_{GS} = 0	10	100		mA
Pinch-Off Voltage	V_{PO}	V_{DS} = 10V, I_D = 0.1mA	0.3	1.5	3.0	Volts
Transconductance	g_m	V_{DS} = 10V, I_D = 10mA, f = 1kHz	25	40		mmho
Input Capacitance	C_{iss}	V_{DS} = 10V, I_D = 10mA, f = 140kHz		30	35	pfd
Reverse Xfer Cap	C_{rss}	V_{DS} = 10V, f = 140kHz		17	20	pfd
Gate to Drain Capacitance	C_{GD}	V_{GD} = -10V, f = 140kHz		20		pfd
Output Admittance	Y_{OS}	V_{DS} = 10V, I_D = 10mA		50	100	μmho
Input Noise Voltage	e_n	V_{DS} = 5V, I_D = 10mA, f = 1kHz		1.4	2.0	$nV/Hz^{1/2}$
Input Noise Voltage	e_n	V_{DS} = 5V, I_D = 10mA, f = 10Hz		6.0	10	$nV/Hz^{1/2}$
Input Noise Voltage	e_n TOTAL	V_{DS} = 5V, I_D = 10mA, f = 10Hz to 20kHz		0.4	0.6	μVrms
Equivalent Open Ckt. Input Noise current	i_n	Rsource < 100K Ω f = 1 kHz		.01		$pA/Hz^{1/2}$

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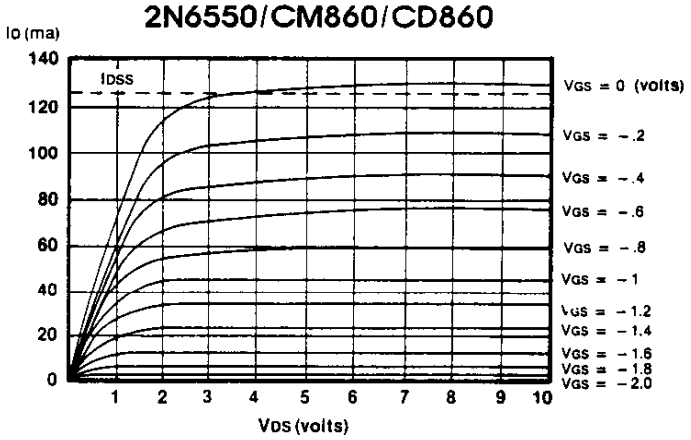
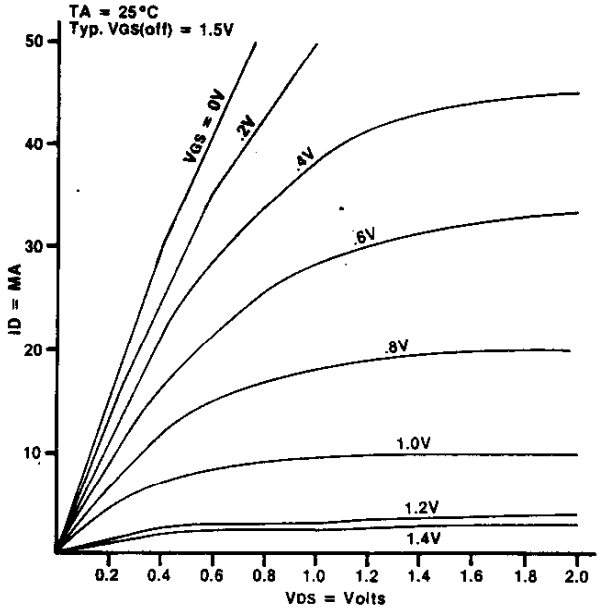
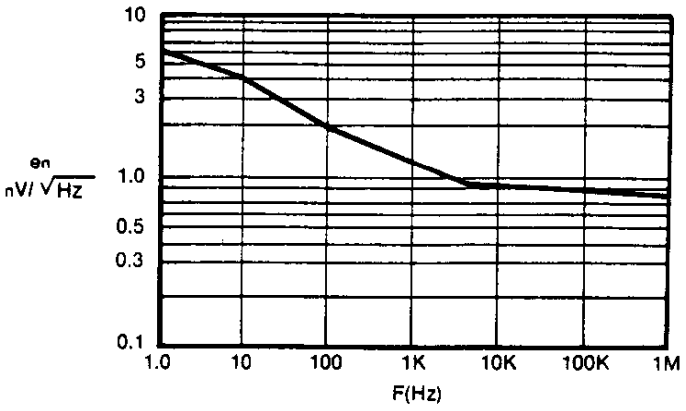
TYPICAL CHARACTERISTIC CURVES 2N6550/CM860/CD860

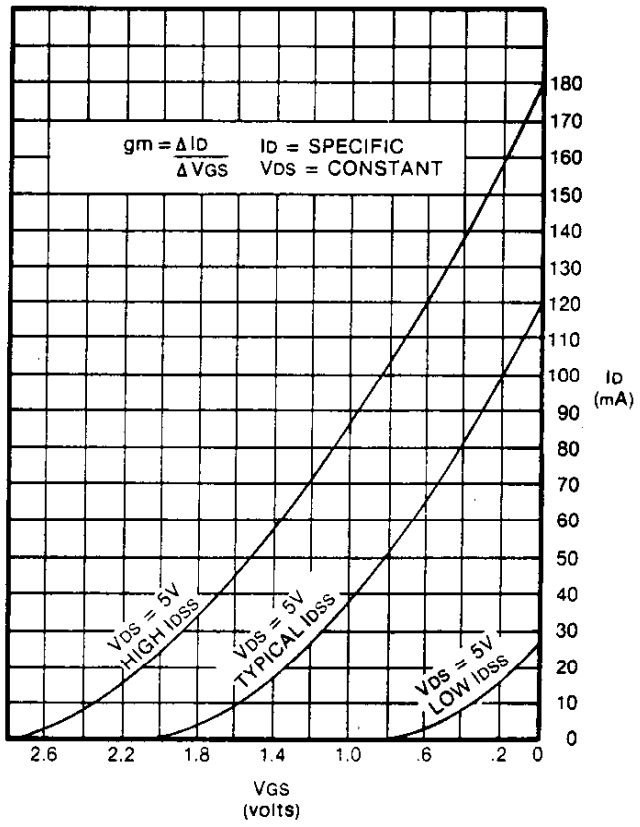




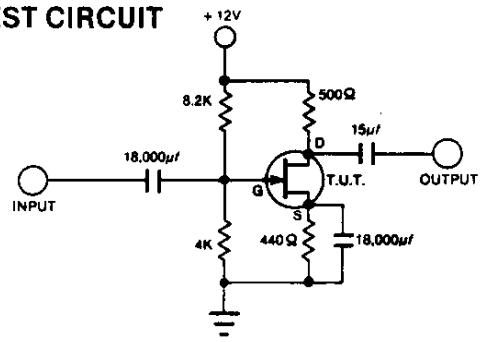
TYPICAL SHORT CIRCUIT INPUT NOISE VS. FREQUENCY 2N6550/CM860/CD860



TRANSFER CHARACTERISTICS 2N6550/CM860/CD860



NOISE TEST CIRCUIT



LOW NOISE — LOW LEVEL AMPLIFIER Av = 25 min.