

POWERFET™

SILICON EPITAXIAL JUNCTION N-CHANNEL FIELD EFFECT TRANSISTOR

CP643

- FOR HIGH DYNAMIC RANGE R.F. AMPLIFIERS
- SPECIFIED FOR H.F. BAND – USEABLE THRU 500 MHz
- LOW NOISE FIGURE DIRECT FROM 50 Ohm LINE²

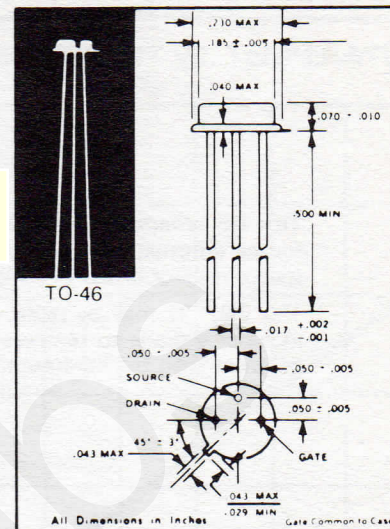
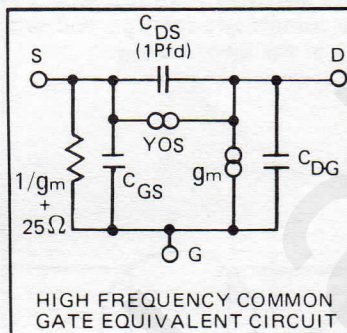


With compliments
of Island Labs

ELECTRICAL DATA

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain to Source Voltage	BV _{DSO}	30	Volts
Drain to Gate Voltage	BV _{DGO}	30	Volts
Gate to Source Voltage	BV _{GSO}	-15	Volts
Peak Drain Current	I _D	0.3	Amps
Power Dissipation 25°C CASE	P _D	2.0	Watts
Derating Factor (slope)	DF	87	°C/W
Junction Temp. (Oper. & Store)	T _J	-55°C to +200°C	



TYPICAL TWO TONE 3rd ORDER IM PRODUCTS

Tones at 3MHz/5MHz

Signal Level EMF	Typ. 3rd Order Product
0.25 Volt (OdBM)	- 58dB

ELECTRICAL CHARACTERISTICS: T_{CASE} = 25°C (UNLESS OTHERWISE STATED)

PARAMETERS AND CONDITIONS	SYMBOL	CP 643			UNITS
		Min.	Typ.	Max.	
Gate Leakage Current V _{GS} = -15V, V _{DS} = 0	I _{GSS}	—	1.0	10	nA
Gate Leakage Current V _{GS} = -15V, V _{DS} = 0, T _C = 125°C	I _{GSS}	—	—	10	μA
Transconductance V _{DS} = 15V, I _{DS} = 25 mA	g _m	20	25	30	mMhos
Pinch-Off Voltage V _{DS} = 5V, I _{DS} = 1.0 mA	V _{PO}	2.0	4.0	7.0	Volts
Gain in Ckt. of TMF18 I _{DS} = 25 mA. f = 1 to 100 MHz.	A	8.0	9.0	10.0	dB
Gate to Source Cap. V _{GS} = -20V	C _{GS}	—	5	6	pf
Gate to Drain Cap. V _{GD} = -20V	C _{GD}	—	5	6	pf
Drain Current ¹ V _{DS} = 15V, V _{GS} = 0	I _{DSS}	50	100	250	mAmps
TMF18 ² I _{DS} = 25 mA. f = 1 MHz.	N.F.	—	4.0	5.0	dB

¹ Pulse Measurement 1% Duty Cycle 10 ms Max.

² The noise figure will be improved at the cost of gain when used in a 75Ω line with a 2:1 output winding ratio or in a 50Ω line with an input step up transformer.

³ The gain may be raised at a sacrifice in bandwidth by increasing the output transformer ratio.

JUNCTION CAPACITANCE VS. VOLTAGE

