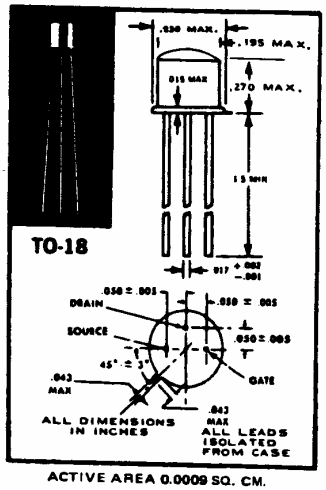
FOTOFET™
SILICON EPITAXIAL JUNCTION N-CHANNEL FIELD EFFECT TRANSISTOR

FF412

GEOMETRY 446

- **HIGH SENSITIVITY**
- **LOW DARK CURRENT**
- **FAST RESPONSE**
- **LOW R_{ON}**



ACTIVE AREA 0.0009 SQ. CM.
AT DIE SURFACE SENSITIVITY ÷.3μA/μW

ELECTRICAL DATA ABSOLUTE MAXIMUM RATING

Drain to Source Voltage	BV_{DSO}	30 Volts
Drain to Gate Voltage	BV_{DGO}	30 Volts
Gate to Source Voltage	BV_{GSO}	-15 Volts
D.C. Forward Gate Current	I_{GF}	50 mA
Junction Temp (operating and storage)	T_J	-65°C to +200°C
Power Dissipation (free air)	P_D	300mW
Lead Temp (@1/16" ± 1/32" from case)	T_L	240°C for 10 sec.
Derating Factor From 200°C	D_F	1.7mW/°C

ELECTRICAL CHARACTERISTICS: T_A = 25°C

PARAMETER	SYMBOL	CONDITION	FF412 Min.	FF412 Typ.	FF412 Max.	Units
Gate Sensitivity[5]	S_G	V_{DS} = 15V, V_{GS} = 0, λ = .9 microns	5.0	7.5	–	μA/mW/cm²
Gate Current (Light)[1]	λ_{Ig}	V_{DS} = 15V, V_{GS} = OV	8.0	12.0	–	nA/FC
Drain Sensitivity[6]	S_D	V_{DS} = 15V, I_D = 5mA, R_G = 1MΩ	–	90	–	mA/mW/cm²
Drain Current (Light)[1]	λ_{Id}	V_{DS} = 15V, I_D = 5mA, R_G = 1M Ω	–	144	–	μA/FC
Zero Gate Voltage Drain Current[4]	I_{DSS}	V_{DS} = 15V, V_{GS} = 0	5.0	35	–	mA
Transconductance	g_m	V_{DS} = 15V, I_D = 5mA, f = 1kHz	8,000	15,000	25,000	μmho
Rise Time[2]	T_R	V_{DS} = 15V, R_L = 1K, R_G = 1K	–	25	–	nsec
Fall Time[3]	T_F	V_{DS} = 15V, R_L = 1K, R_G = 1K	–	40	–	nsec
Pinch-Off Voltage	V_{PO}	V_{DS} = 25V, I_{DS} = 10.0 nA	1.0	3.0	5.0	Volts
Gate to Source Cap.	C_{GS}	V_{GS} = –10V, f = 140 κHz	–	–	6.5	pfd
Gate to Drain Cap.	C_{GD}	V_{GD} = –10V, f = 140 κHz	–	–	6.5	pfd
Gate Leakage Current (Dark)	I_{GSS}	V_{GS} = –5V, V_{DS} = 25	–	0.05	1.0	nA
ON Resistance	R_{DS}	V_{DS} = 0.1V, V_{GS} = 0	–	50	100	Ohms

[1] Tungsten Lamp 2800° k Color Temp.
[2] GaAs Diode Source.
[3] Directly Proportional to R_G
[4] Pulse Measurement 1% Duty Cycle, 10MS Max.
[5] Gate Current per unit Radient Power Density at Lens Surface
[6] Drain Current per unit Radient Power Density (λ = 0.9 microns)

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