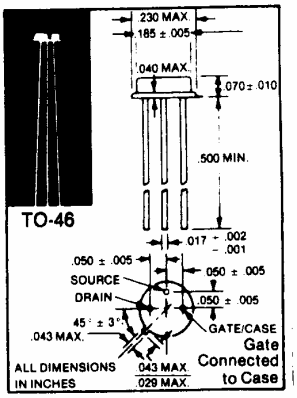
ULTRA LOW R_{ON} SWITCHING

SILICON EPITAXIAL JUNCTION
N-CHANNEL FIELD EFFECT TRANSISTORS

2N4445 thru 2N4448

GEOMETRY 448-1

- LOW R_{DS} – 4 Ohms TYPICAL
- LOW C_{GD} – 15 pfd TYPICAL
- HIGH I_{DSS} – 400mA TYPICAL



ELECTRICAL DATA ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	2N 4445	2N 4446	2N 4447	2N 4448	UNITS
Drain to Gate Voltage	BV_{DGO}	25	25	20	20	Volts
Gate to Source Voltage	BV_{GSO}	-25	-25	-20	-20	Volts
Peak Forward Gate Current	I_{GF}	100	100	100	100	mA
Peak Drain Current	I_D	400	400	400	400	mA
Power Dissipation (free air)	P_D	400	400	400	400	mW
Derating Factor (free air)	D_F	2.3	2.3	2.3	2.3	mW/°C
Junction Temp. (Oper. & Store)	T_J	-65°C to +200°C				
Lead Temp. (@ 1/16" ± 1/32" from case)	T_L	240°C for 10 sec.				

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

PARAMETERS AND CONDITIONS	SYMBOL	2N4445			2N4446			2N4447			2N4448			UNITS
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Gate Leakage Current V_{GS} = 15V, V_{DS} = 0	I_{GSS}	–	–	3.0	–	–	3.0	–	–	3.0	–	–	3.0	nA
Gate Leakage Current V_{GS} = 15V, V_{DS} = 0, T_A = 100°C	I_{GSS}	–	–	0.6	–	–	0.6	–	–	0.6	–	–	0.6	µA
Drain Cutoff Current V_{GS} = -10V, V_{DS} = 5V	$I_{D\,OFF}$	–	–	3.0	–	–	3.0	–	–	3.0	–	–	3.0	nA
Drain Cutoff Current V_{GS} = -10V, V_{DS} = 5V, T_A 100°C	$I_{D\,OFF}$	–	–	0.6	–	–	0.6	–	–	0.6	–	–	0.6	µA
Pinch-Off Voltage V_{DS} = 5V, I_{DS} 3nA	V_{PO}	2.0	7.0	10	2.0	7.0	10	2.0	7.0	10	2.0	7.0	10	Volts
On Resistance V_{DS} = 0.1V, V_{GS} = 0	R_{DS}	–	4.0	5.0	–	7.0	10	–	4.0	6.0	–	7.0	12	Ohms
Drain-Source "On" Voltage I_D = 10mA, V_{GS} = 0	V_{DS} (On)	–	–	50	–	–	100	–	–	60	–	–	120	mV
Drain Current* V_{DS} = 2V, V_{GS}= 0	I_{DSS}	150	–	–	100	–	–	150	–	–	100	–	–	mA
Gate to Source Cap. V_{GS} = 20V	C_{GS}	–	18	25	–	18	25	–	18	25	–	18	25	pfd
Gate to Drain Cap. V_{GD} = 20V	C_{GD}	–	18	25	–	18	25	–	18	25	–	18	25	pfd
Turn On Time[1]	Td + Tr	–	35	–	–	35	–	–	35	–	–	35	–	nS
Turn Off Time[1]	Ts + Tf	–	35	–	–	35	–	–	35	–	–	35	–	nS

*Pulse Measurement 1% Duty Cycle 10 MS Max.

[1] R_G = 50 Ω, V_{DD} = 1.5V, R_D = 150 Ω, V pulse = -10V, Pulse width 0.5µs min., V_{GS} = OV

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