

**ULTRA LOW RON
SWITCHING**
SILICON EPITAXIAL JUNCTION
N-CHANNEL FIELD EFFECT TRANSISTORS

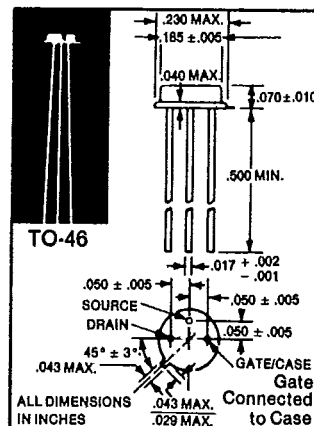
2N4445
thru
2N4448

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	2N4445	2N4446	2N4447	2N4448	UNITS
Drain to Gate Voltage	BV_{DGS}	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: $T_A = 25^\circ\text{C}$ (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 $V_{GS} = 15V, V_{DS} = 0, T_A = 100^\circ\text{C}$	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 $V_{GS} = -10V, V_{DS} = 5V, T_A = 100^\circ\text{C}$	$I_{D OFF}$	—	—	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	$T_d + T_r$	—	35	—	—	35	—	—	35	—	—	35	—	nS
Turn Off Time ¹	$T_s + T_f$	—	35	—	—	35	—	—	35	—	—	35	—	nS

*Pulse Measurement 1% Duty Cycle 10 MS Max.

¹ $R_a = 50 \Omega, V_{DD} = 1.5V, R_o = 150 \Omega, V_{pulse} = -10V, V_{pulse} \text{ width } 0.5\mu\text{s min.}, V_{GS} = 0V$



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