

**POWERFET™**  
SILICON EPITAXIAL JUNCTION  
N-CHANNEL FIELD EFFECT TRANSISTORS

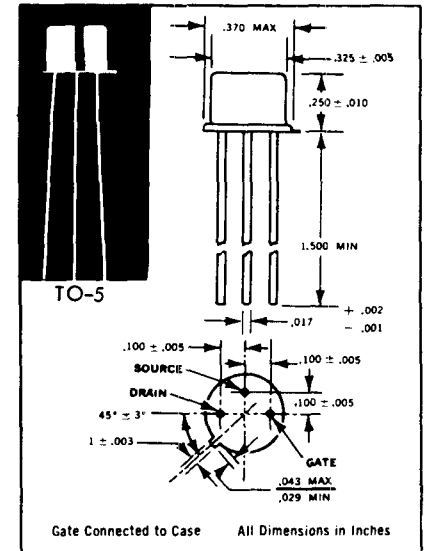
**CP650  
CP651  
CP652  
CP653**

GEOMETRY 424, PG. 58

- LOW  $R_{DS}$  – 5 Ohms TYPICAL
- LOW  $C_{GD}$  – 20 pfd TYPICAL
- HIGH  $I_{DSS}$  – 0.5 Amp TYPICAL
- HIGH  $g_m$  – 150,000  $\mu$ mhos TYPICAL

**ELECTRICAL DATA**      **ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	CP650	CP651	CP652	CP653	UNITS
Drain to Source Voltage	$BV_{DSO}$	25	20	20	20	Volts
Drain to Gate Voltage	$BV_{DGO}$	25	20	20	20	Volts
Gate to Source Voltage	$BV_{GSO}$	-25	-20	-20	-20	Volts
Peak Drain Current	$I_D$	1.2	0.6	0.6	0.6	Amps
Power Dissipation 25°C Case	$P_D$	8.0	8.0	8.0	8.0	Watts
Derating Factor (slope)	$D_F$	22	22	22	22	°C/W
Junction Temp. (Oper. & Store)	$T_J$	-65°C to +200°C				



**ELECTRICAL CHARACTERISTICS:**  $T_{CASE} = 25^\circ\text{C}$  (UNLESS OTHERWISE STATED)

PARAMETERS AND CONDITIONS	SYMBOL	AMPLIFIERS						SWITCHES						UNITS
		CP650			CP651			CP652			CP653			
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Gate Leakage Current $V_{GS} = -15V, V_{DS} = 0$	$I_{GSS}$	-	5.0	100	-	5.0	100	-	-	100	-	-	100	nA
Gate Leakage Current $V_{GS} = -15V, V_{DS} = 0, T_C = 100^\circ\text{C}$	$I_{GSS}$	-	-	10	-	-	10	-	-	10	-	-	10	$\mu$ A
Transconductance <sup>1</sup> $V_{DS} = 15V, V_{GS} = 0$	$g_m$	0.1	0.15	0.25	0.075	0.1	0.2	-	0.1	-	-	0.06	-	mhos
Pinch-Off Voltage $V_{DS} = 5V, I_{DS} = 1.0\text{mA}/3\text{nA}^*$	$V_{PO}$	2.0	5.0	10	2.0	5.0	10	2.0*	5.0*	10*	2.0*	5.0*	10*	Volts
On Resistance $I_{DS} = 10\text{mA}, V_{GS} = 0$	$R_{DS}$	-	4.0	-	-	7.0	-	-	4.0	6.0	-	7.0	12	Ohms
Gate to Source Cap. $V_{GS} = -20V$	$C_{GS}$	-	20	25	-	20	25	-	20	25	-	20	25	pfd
Gate to Drain Cap. $V_{GD} = -20V$	$C_{GD}$	-	20	25	-	20	25	-	20	25	-	20	25	pfd
Drain Current <sup>1</sup> $V_{DS} = 15V, V_{GS} = 0$	$I_{DSS}$	0.3	0.6	1.2	0.1	0.3	0.5	0.1	-	-	0.06	-	-	Amps
Gain-Bandwidth Product $V_{DS} = 15V, V_{GS} = 0$	$F_t$	-	1.0	-	-	1.0	-	-	1.0	-	-	1.0	-	GHz

<sup>1</sup> Pulse Measurement 1% Duty Cycle 10 mS Max.

™ TRADEMARK OF CRYSTALONICS, INC.

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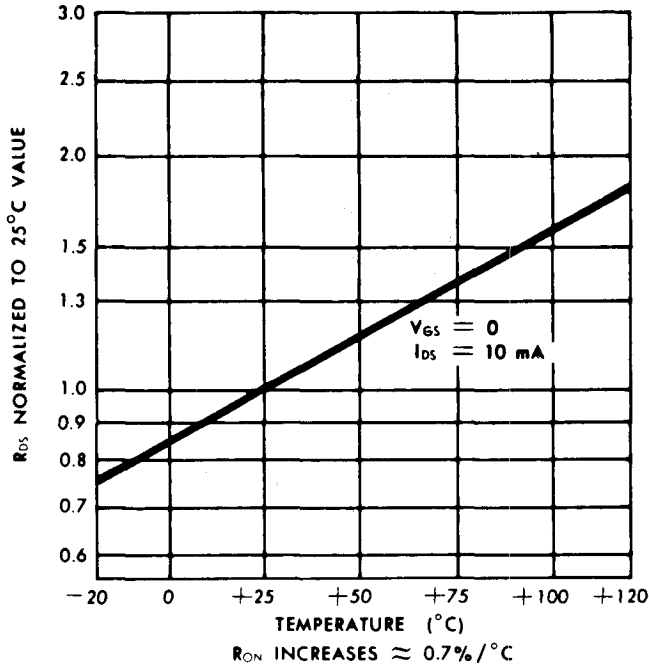
www.DataSheet4U.com

CP650 thru CP653

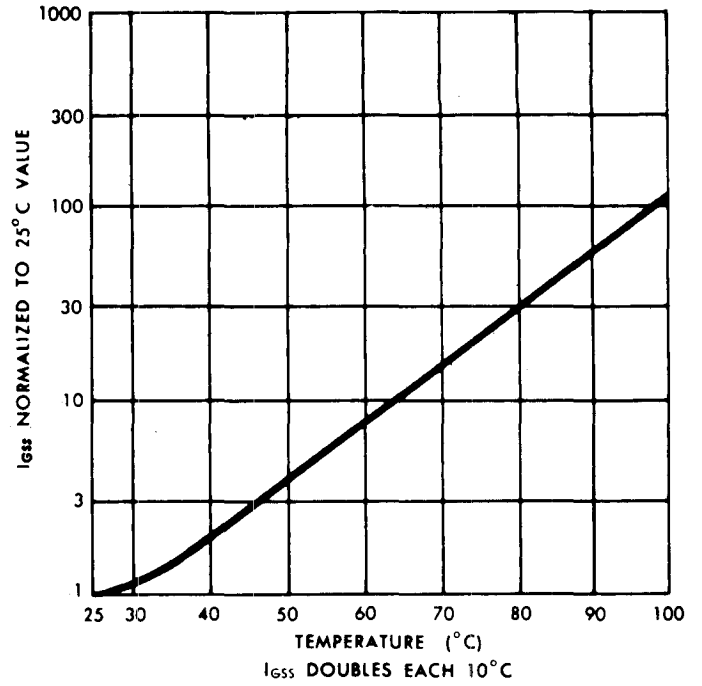
2N4445 thru 2N4448

TYPICAL CHARACTERISTICS

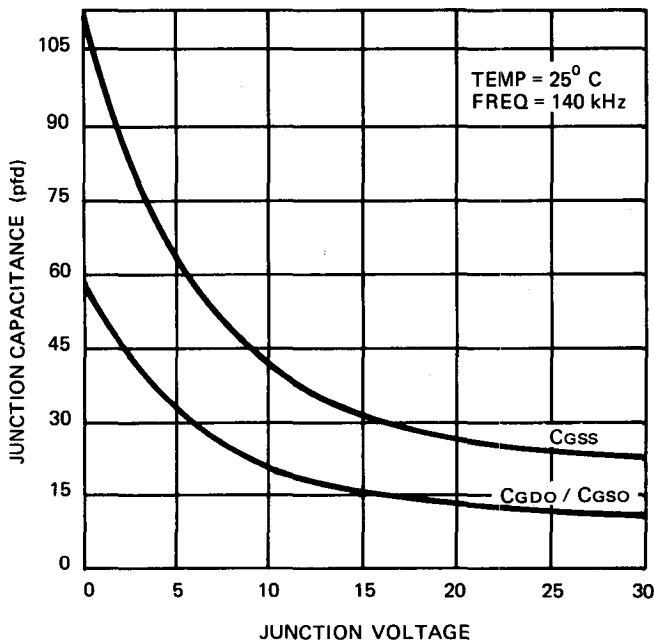
ON RESISTANCE VS. TEMPERATURE



GATE LEAKAGE CURRENT VS. TEMPERATURE



JUNCTION CAPACITANCE VS. VOLTAGE



ON RESISTANCE VS. GATE VOLTAGE

