

POWRFET™ SILICON EPITAXIAL JUNCTION N-CHANNEL FIELD EFFECT TRANSISTORS

CP650
CP651
CP652
CP653

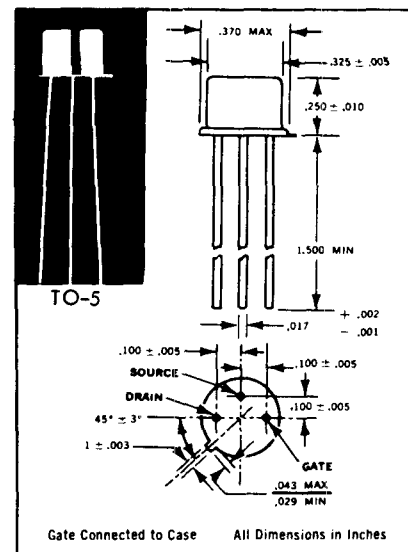
GEOMETRY 424, PG. 58

- LOW R_{DS} — 5 Ohms TYPICAL
- LOW C_{GD} — 20 pfd TYPICAL
- HIGH I_{DSS} — 0.5 Amp TYPICAL
- HIGH g_m — 150,000 μ 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)

		AMPLIFIERS						SWITCHES						
PARAMETERS AND CONDITIONS	SYMBOL	CP650			CP651			CP652			CP653			UNITS
		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, TC = 100°C	I _{GSS}	—	—	10	—	—	10	—	—	10	—	—	10	μA
Transconductance ¹ 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} = 1.0mA/3nA *	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} = 10mA, 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 ¹ 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

¹ Pulse Measurement 1% Duty Cycle 10 mS Max.

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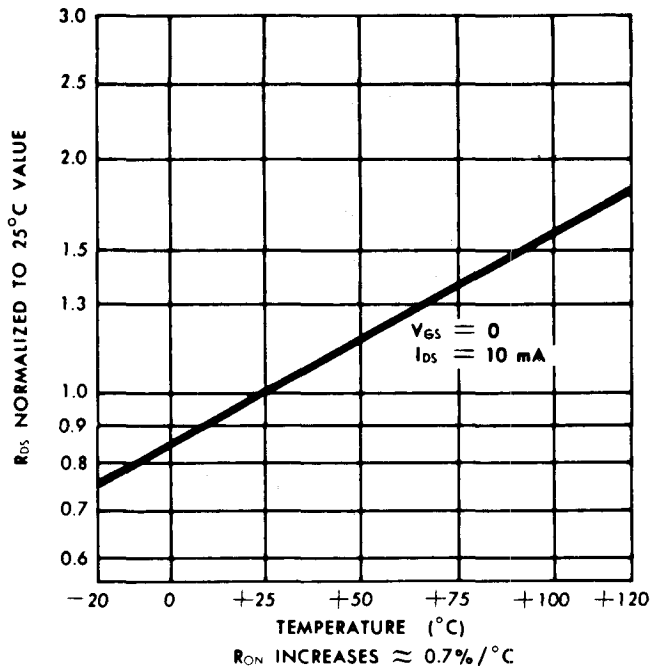
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CP650 thru CP653

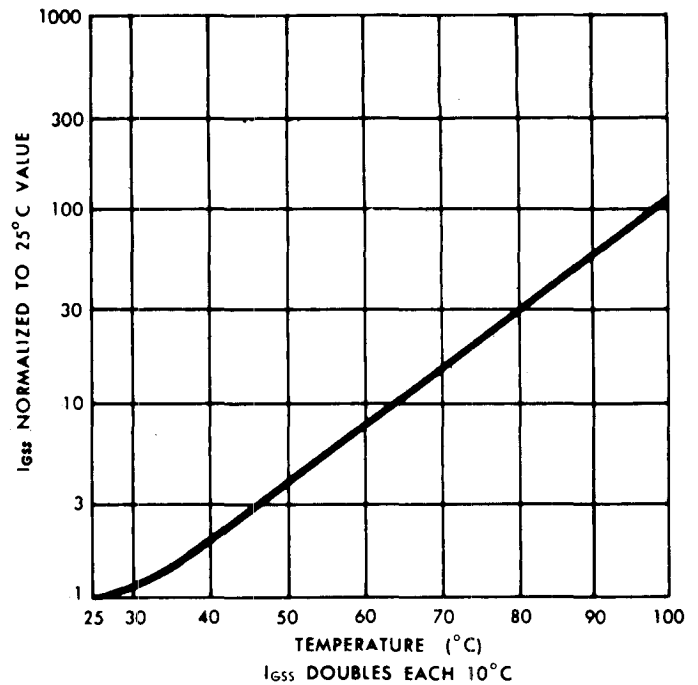
2N4445 thru 2N4448

TYPICAL CHARACTERISTICS

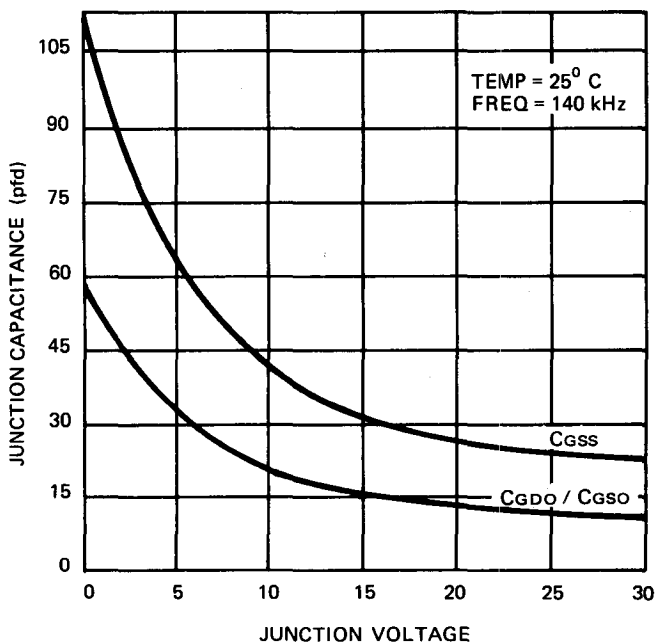
ON RESISTANCE VS. TEMPERATURE



GATE LEAKAGE CURRENT VS. TEMPERATURE



JUNCTION CAPACITANCE VS. VOLTAGE



ON RESISTANCE VS. GATE VOLTAGE

