HIGH VOLTAGE VIDEO OUTPUT
NPN POWER TRANSISTORS

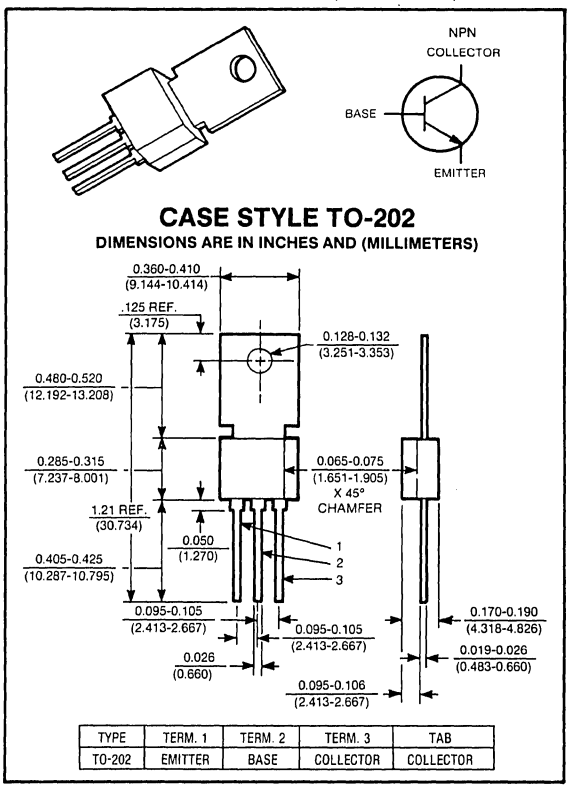
D40V Series

250-300 VOLTS
.1 AMP, 9 WATTS

The D40V is an encapsulated power transistor for TV video and color output stages. Other TV and general applications include: (1) Drive for the TV horizontal output transistor; (2) Audio output stage for portable TV sets; (3) High voltage transistor regulator; (4) Video display drivers for oscilloscopes, electroluminescent displays and calculators; and, (5) High voltage general usage.

Features:

- Low C_{CB} (2.0 pF typical at V_{CB} = 20V)
- Excellent linearity



TYPE	TERM. 1	TERM. 2	TERM. 3	TAB
TO-202	EMITTER	BASE	COLLECTOR	COLLECTOR

maximum ratings (T_A = 25° C) (unless otherwise specified)

RATING	SYMBOL	D40V1,2	D40V3,4	D40V5,6	UNITS
Collector-Emitter Voltage	V_{CEO}	250	300	350	Volts
Collector-Emitter Voltage	V_{CES}	300	350	400	Volts
Emitter Base Voltage	V_{EBO}	5	5	5	Volts
Collector Current — Continuous	I_C	.1	.1	.1	A
Base Current — Continuous	I_B	.1	.1	.1	A
Total Power Dissipation @ T_A = 25° C @ T_C = 25° C	P_D	9 1.7	9 1.7	9 1.7	Watts
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	-55 to +150	-55 to +150	°C

thermal characteristics

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	73.5	73.5	73.5	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	13.9	13.9	13.9	°C/W
Maximum Lead Temperature for Soldering Purpose: ⅛" from Case for 5 Seconds	T_L	260	260	260	°C

electrical characteristics (T_C = 25° C) (unless otherwise specified)

CHARACTERISTIC		SYMBOL	MIN	TYP	MAX	UNIT
off characteristics[1]						
Collector-Emitter Voltage (I_C = 5mA)	D40V1,2	V_{CEO}	250	—	—	Volts
	D40V3,4		300	—	—	
	D40V5,6		350	—	—	
Collector Cutoff Current						
(V_{CE} = 300V)	D40V1,2	I_{CES}	—	—	10	μA
(V_{CE} = 350V)	D40V3,4		—	—	10	μA
(V_{CE} = 400V)	D40V5,6		—	—	10	μA
Emitter Cutoff Current (V_{EB} = 5V)		I_{EBO}	—	—	10	μA
second breakdown						
Second Breakdown with Base Forward Biased		FBSOA	SEE FIGURE 6			
on characteristics[1]						
DC Current Gain						
(I_C = 5mA, V_{CE} = 10V)	D40V1,3,5	h_{FE}	20	—	—	—
(I_C = 20mA, V_{CE} = 10V)			30	—	90	
(I_C = 40mA, V_{CE} = 10V)			20	—	—	
(I_C = 5mA, V_{CE} = 10V)	D40V2,4,6	h_{FE}	30	—	—	
(I_C = 20mA, V_{CE} = 10V)			60	—	180	
(I_C = 40mA, V_{CE} = 10V)			30	—	—	
Collector-Emitter Saturation Voltage (I_C = 20mA, I_B = 2mA)		$V_{CE(sat)}$	—	—	1.0	V
dynamic characteristics						
Collector Capacitance (V_{CB} = 10V, f = 1 MHz)		C_{CB}	—	2	3	pF
Current Gain Bandwidth Product (I_C = 100mA, V_{CE} = 10V, f_{test} = 1.0 MHz)		f_T	50	—	—	MHz

(1) Pulse Test: Pulse Width - 300μs Duty Cycle ≤ 2%.

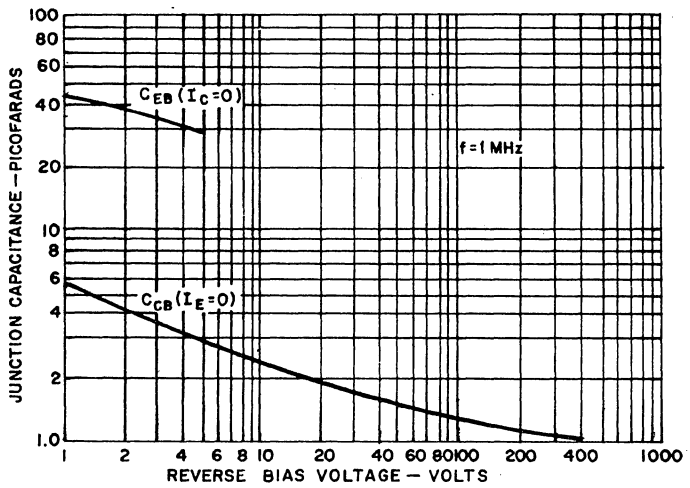


FIG. 1 JUNCTION CAPACITANCE VS. REVERSE BIAS VOLTAGE

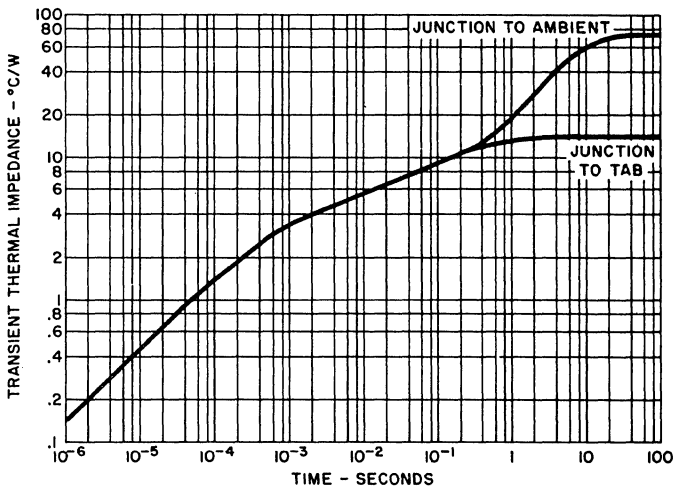


FIG. 2 MAXIMUM TRANSIENT THERMAL IMPEDANCE

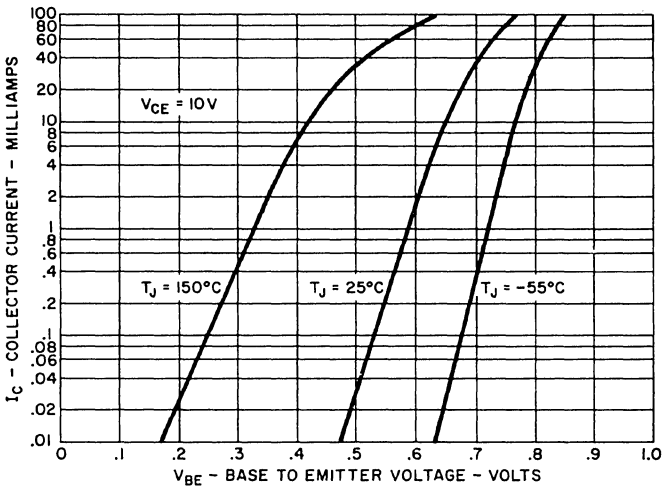


FIG. 3 TYPICAL TRANCONDUCTANCE CHARACTERISTICS

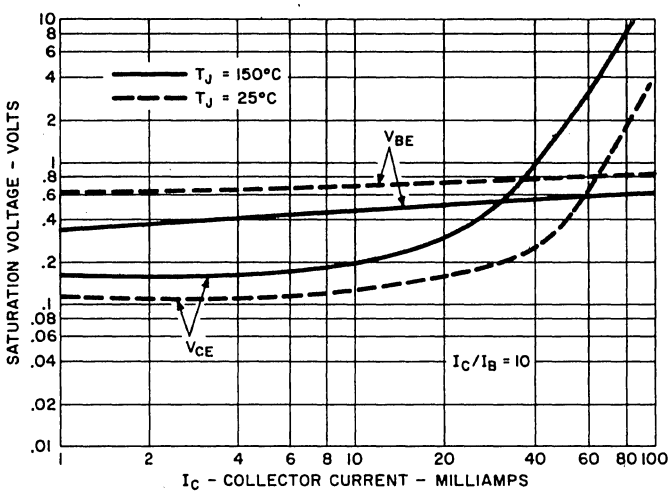


FIG. 4 TYPICAL SATURATION VOLTAGES

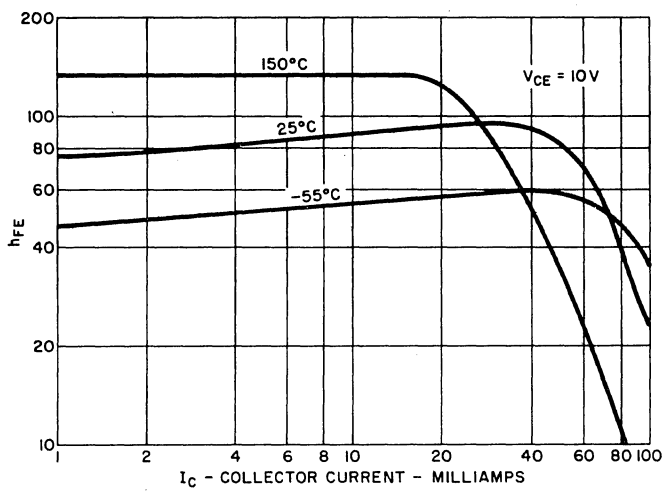


FIG. 5 TYPICAL h_{FE} VS. I_C

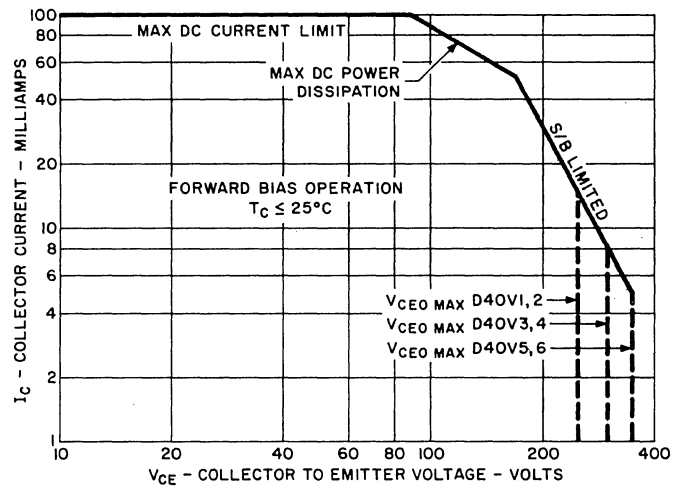


FIG. 6 SAFE REGION OF OPERATION