PNP POWER TRANSISTORS

COMPLEMENTARY TO THE D44C SERIES

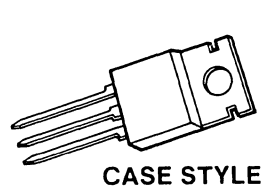
D45C Series

-30 - -80 VOLTS
-4 AMP, 30 WATTS

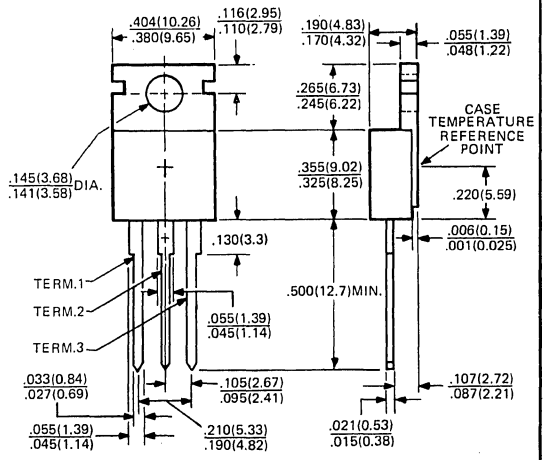
The General Electric D45C is a power transistor designed for various specific and general purpose applications, such as: output and driver stages of amplifiers operating at frequencies from DC to greater than 1.0 MHz; series, shunt and switching regulators; low and high frequency inverters/converters; and many others.

Features:

- PNP complement to D44C NPN
- Very Low collector saturation voltage (-0.5V typ. @ -3.0A I_C)
- Excellent linearity
- Fast Switching



CASE STYLE TO-220AB
DIMENSIONS ARE IN INCHES AND (MILLIMETERS)



TYPE	TERM. 1	TERM. 2	TERM. 3	TAB
TO-220-AB	BASE	COLLECTOR	EMITTER	COLLECTOR

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

RATING	SYMBOL	D45C1, 2, 3	D45C4, 5, 6	D45C7, 8, 9	D45C10, 11, 12	UNITS
Collector-Emitter Voltage	V_{CEO}	-30	-45	-60	-80	Volts
Collector-Emitter Voltage	V_{CES}	-40	-55	-70	-90	Volts
Emitter Base Voltage	V_{EBO}	-5	-5	-5	-5	Volts
Collector Current — Continuous Peak(1)	I_C I_{CM}	-4 -6	-4 -6	-4 -6	-4 -6	A
Base Current — Continuous	I_B	2	2	2	2	A
Total Power Dissipation @ T_A = 25°C @ T_C = 25°C	P_D	1.67 30	1.67 30	1.67 30	1.67 30	Watts
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	-55 to +150	-55 to +150	-55 to +150	°C

thermal characteristics

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	75	75	75	75	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	4.2	4.2	4.2	4.2	°C/W
Maximum Lead Temperature for Soldering Purposes: ⅛" from Case for 5 Seconds	T_L	+260	+260	+260	+260	°C

(1) Pulse Test Pulse Width = 300ms Duty Cycle ≤ 2%.

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

CHARACTERISTIC		SYMBOL	MIN	TYP	MAX	UNIT
off characteristics[1]						
Collector-Emitter Sustaining Voltage (I_C = -100mA)	D45C1, 2, 3 D45C4, 5, 6 D45C7, 8, 9 D45C10, 11, 12	$V_{CEO(sus)}$	-30 -45 -60 -80	— — — —	— — — —	Volts
Collector Cutoff Current (V_{CE} = Rated V_{CES})		I_{CES}	—	—	-10	μA
Emitter Cutoff Current (V_{EB} = 5V)		I_{EBO}	—	—	-100	μA
second breakdown						
Second Breakdown with Base Forward Biased		FBSOA	SEE FIGURE 3			
on characteristics[1]						
DC Current Gain (I_C = -0.2A, V_{CE} = -1V)	D45C1, 4, 7, 10 D45C2, 5, 8, 11 D45C3, 6, 9, 12	h_{FE}	25 40 40	— — —	— 120 120	—
(I_C = -1A, V_{CE} = -1V)	D45C1, 4, 7, 10 D45C2, 5, 8, 11	h_{FE}	10 20	— —	— —	—
(I_C = -2A, V_{CE} = -1V)	D45C3, 6, 9, 12	h_{FE}	20	—	—	
Collector-Emitter Saturation Voltage (I_C = -1A, I_B = -50mA) (I_C = -1A, I_B = -100mA)	D45C2, 5, 8, 11 D45C3, 6, 9, 12 D43C1, 4, 7, 10	$V_{CE(sat)}$	— — —	— — —	-0.5 -0.5 -0.5	Volts
Base-Emitter Saturation Voltage (I_C = -1A, I_B = -100mA)		$V_{BE(sat)}$	—	—	-1.3	Volts
dynamic characteristics						
Collector Capacitance (V_{CB} = -10V, f = 1M_{Hz})		C_{CBO}	—	—	125	pF
Current-Gain — Bandwidth Product (I_C = -20mA, V_{CE} = -4V)		f_T	—	40	—	MHz
switching characteristics						
Resistive Load						
Delay Time + Rise Time	I_C = -1A, I_{B1} = I_{B2} = -0.1A,	$t_d + t_r$	—	50	—	nS
Storage Time	V_{CC} = -1A, t_p = 25 μsec	t_s	—	500	—	
Fall Time		t_f	—	50	—	

(1) Pulse Test PW = 300ms Duty Cycle ≤ 2%.

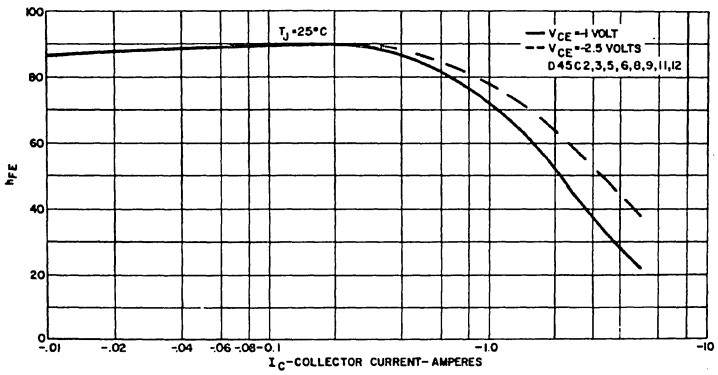


FIG. 1 TYPICAL h_{FE} VS. I_C

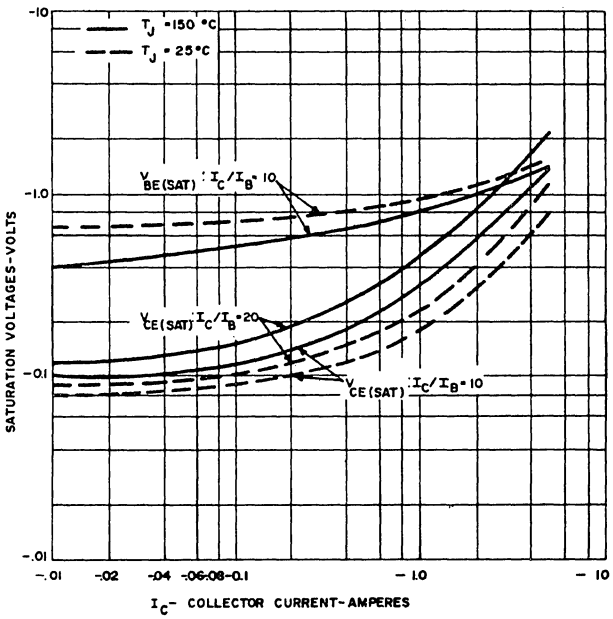


FIG. 2 TYPICAL SATURATION VOLTAGE CHARACTERISTICS

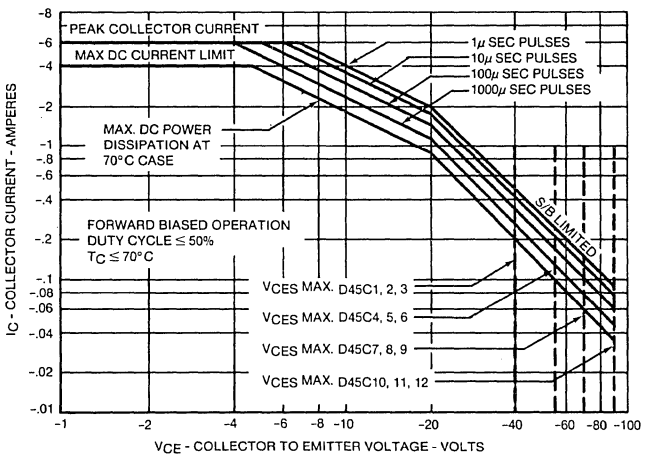


FIG. 3 SAFE REGION OF OPERATION

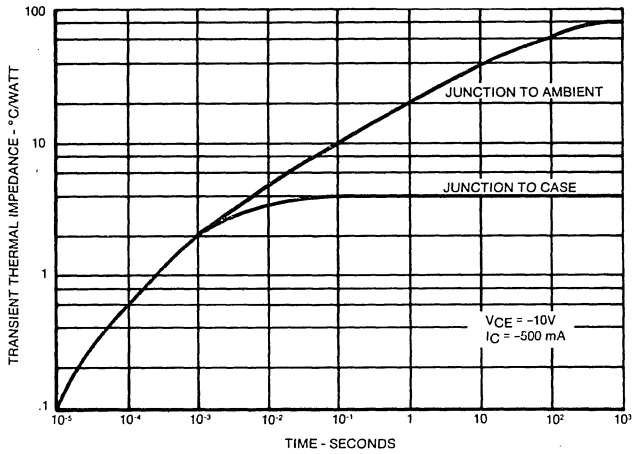


FIG. 4 MAXIMUM TRANSIENT THERMAL IMPEDANCE