



VERY HIGH GAIN NPN POWER DARLINGTON TRANSISTORS

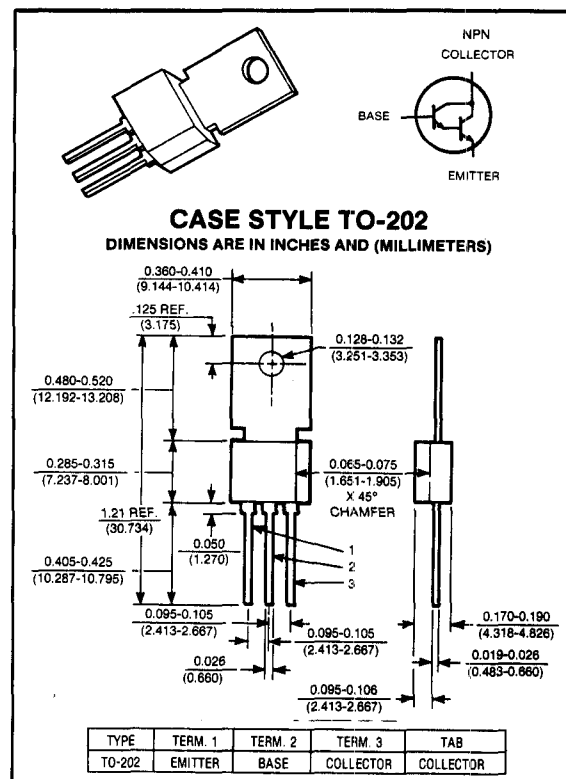
COMPLEMENTARY TO THE D41K SERIES

D40K Series

**30-50 VOLTS
2 AMP, 10 WATTS**

Applications:

- Driver
- Regulator
- Touch Switch
- I.C. Driver
- Capacitor Multiplier
- Audio Output
- Relay Substitute
- Oscillator
- Servo-Amplifier



maximum ratings ($T_A = 25^\circ\text{C}$) (unless otherwise specified)

RATING	SYMBOL	D40K1,3	D40K2,4	UNITS
Collector-Emitter Voltage	V_{CEO}	30	50	Volts
Collector-Emitter Voltage	V_{CES}	30	50	Volts
Emitter Base Voltage	V_{EBO}	13	13	Volts
Collector Current — Continuous	I_C	2	2	A
Collector Current — Peak ⁽¹⁾	I_{CM}	3	3	A
Base Current — Continuous	I_B	.2	.2	A
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ @ $T_C = 25^\circ\text{C}$	P_D	1.67 10	1.67 10	Watts
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	-55 to +150	$^\circ\text{C}$

thermal characteristics

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	75	75	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	12.5	12.5	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	T_L	260	260	$^\circ\text{C}$

(1) Pulse Test: Pulse Width = 300ms. Duty Cycle $\leq 2\%$.

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

CHARACTERISTIC		SYMBOL	MIN	TYP	MAX	UNIT
off characteristics ⁽¹⁾						
Collector-Emitter Sustaining Voltage (I _C = 10mA)	D40K1,3 D40K2,4	V _{CEO}	30 50	— —	— —	Volts
Collector Cut-off Current (V _{CE} = Rated V _{CES})		I _{CES}	—	—	.5	μA
Emitter Cutoff Current (V _{EB} = 13V)		I _{EBO}	—	—	.1	μA

on characteristics

DC Current Gain (I _C = 200mA, V _{CE} = 5V)		h _{FE}	10K	—	—	—
(I _C = 1.5A, V _{CE} = 5V) (I _C = 1A, V _{CE} = 5V)	D40K1,2 D40K3,4	h _{FE}	1K 1K	— —	— —	— —
Collector-Emitter Saturation Voltage (I _C = 1.5A, I _B = 3mA) (I _C = 1A, I _B = 2mA)	D40K1,2 D40K3,4	V _{CE(sat)}	— —	— —	1.5 1.5	V V
Base-Emitter Saturation Voltage (I _C = 1.5A, I _B = 3mA) (I _C = 1A, I _B = 2mA)	D40K1,2 D40K3,4	V _{BE(sat)}	— —	— —	2.5 2.5	V V

dynamic characteristics

Collector Capacitance (I _{CE} = 10V, f = 1MHz)		C _{CBO}	—	5	10	pF
Current-Gain — Bandwidth Product (I _C = 20mA, V _{CE} = 5V)		f _T	—	75	—	MHz

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

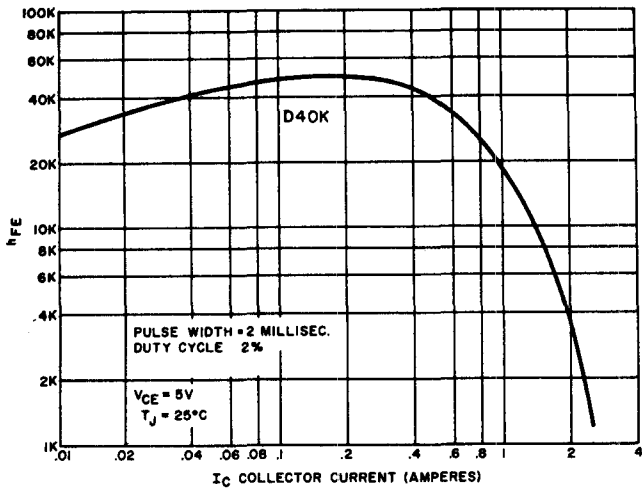


FIG. 1 TYPICAL hFE vs. IC

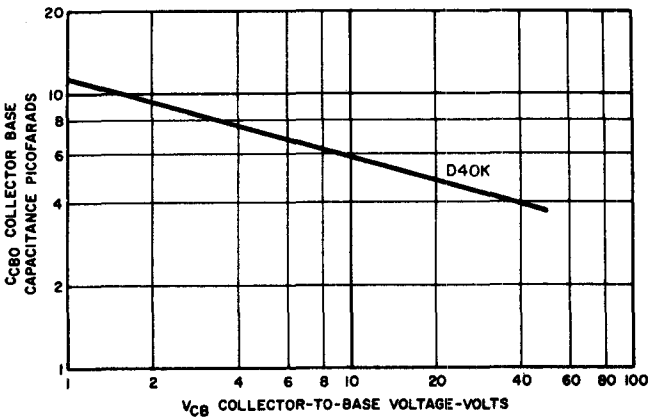


FIG. 2 TYPICAL CCB0 vs. VOLTAGE

FIG. 3
TYPICAL
SATURATION
VOLTAGE

