

D40V SeriesFile Number **2337**

T-33-05

Silicon N-P-N Power Transistors

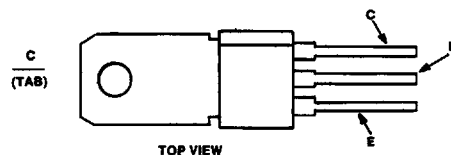
General-Purpose Types for Medium-Power
Switching and Amplifier Applications

Features:

- Low C_{CB} (2 pF typical at $V_{CB} = 20V$)
- Excellent linearity

The D40V-series of silicon n-p-n power transistors are designed for general-purpose high-voltage usage. Applications include: TV horizontal driver and output stage; audio output stage of portable TV sets; high-voltage regulators; and video display drivers.

These devices are supplied in the JEDEC TO-202AB plastic package.

TERMINAL DESIGNATIONS

92CS-43222

JEDEC TO-202AB**MAXIMUM RATINGS ($T_A = 25^\circ C$) (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	0.1	0.1	0.1	A
Base Current — Continuous	I_B	0.1	0.1	0.1	A
Total Power Dissipation @ $T_A = 25^\circ C$ @ $T_C = 25^\circ C$	P_D	1.7 9	1.7 9	1.7 9	Watts
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	-55 to +150	-55 to +150	$^\circ C$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	73.5	73.5	73.5	$^\circ C/W$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	13.9	13.9	13.9	$^\circ C/W$
Maximum Lead Temperature for Soldering Purpose: $\frac{1}{8}$ " from Case for 5 Seconds	T_L	260	260	260	$^\circ C$

ELECTRICAL CHARACTERISTICS (T_C = 25°C) (unless otherwise specified)

T-33-05

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
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OFF CHARACTERISTICS⁽¹⁾

HARRIS SEMICOND SECTOR

Collector-Emitter Voltage (I _C = 5mA)	D40V1,2 D40V3,4 D40V5,6	V _{CEO}	250 300 350	— — —	— — —	Volts
Collector Cutoff Current (V _{CE} = 300V) (V _{CE} = 350V) (V _{CE} = 400V)	D40V1,2 D40V3,4 D40V5,6	I _{CES}	— — —	— — —	10 10 10	μA μA μA
Emitter Cutoff Current (V _{EB} = 5V)		I _{EBO}	—	—	10	μA

SECOND BREAKDOWN

Second Breakdown with Base Forward Biased	FBSOA	SEE FIGURE 6
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ON CHARACTERISTICS⁽¹⁾

DC Current Gain (I _C = 5mA, V _{CE} = 10V) (I _C = 20mA, V _{CE} = 10V) (I _C = 40mA, V _{CE} = 10V)	D40V1,3,5	h _{FE}	20 30 20	— — —	— 90 —	—
(I _C = 5mA, V _{CE} = 10V) (I _C = 20mA, V _{CE} = 10V) (I _C = 40mA, V _{CE} = 10V)	D40V2,4,6	h _{FE}	30 60 30	— — —	— 180 —	—
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%.

POWER TRANSISTORS

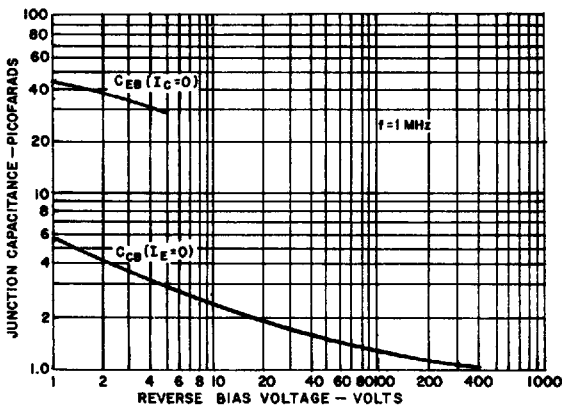


FIG. 1 JUNCTION CAPACITANCE VS. REVERSE BIAS VOLTAGE

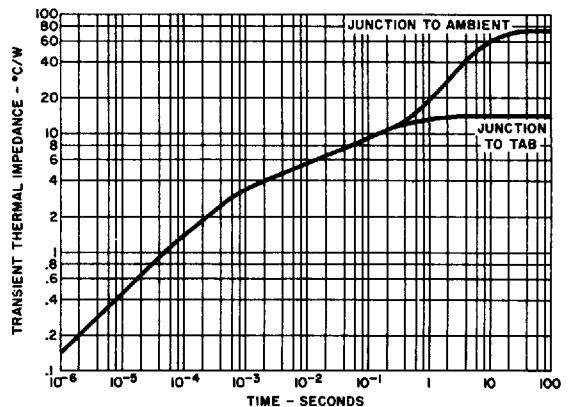


FIG. 2 MAXIMUM TRANSIENT THERMAL IMPEDANCE

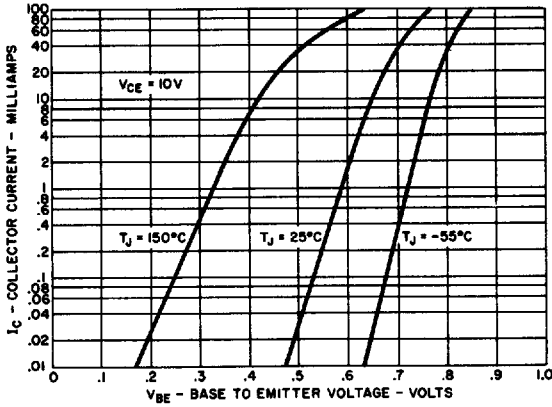


FIG. 3 TYPICAL TRANSCONDUCTANCE CHARACTERISTICS

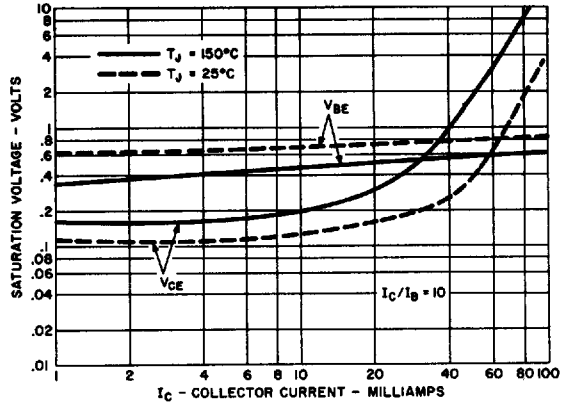


FIG. 4 TYPICAL SATURATION VOLTAGES

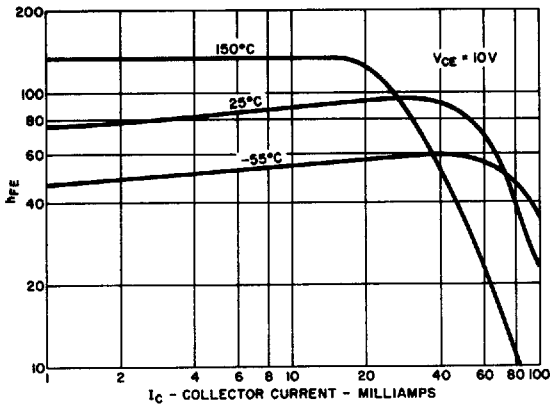


FIG. 5 TYPICAL h_{FE} VS. I_C

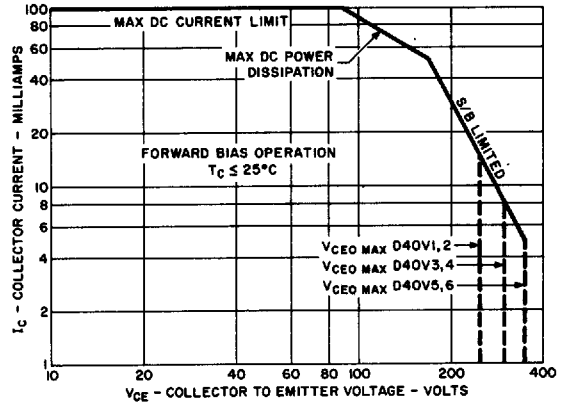


FIG. 6 SAFE REGION OF OPERATION