

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

D41E Series

-30 - -80 VOLTS
-2 AMP, 8 WATTS

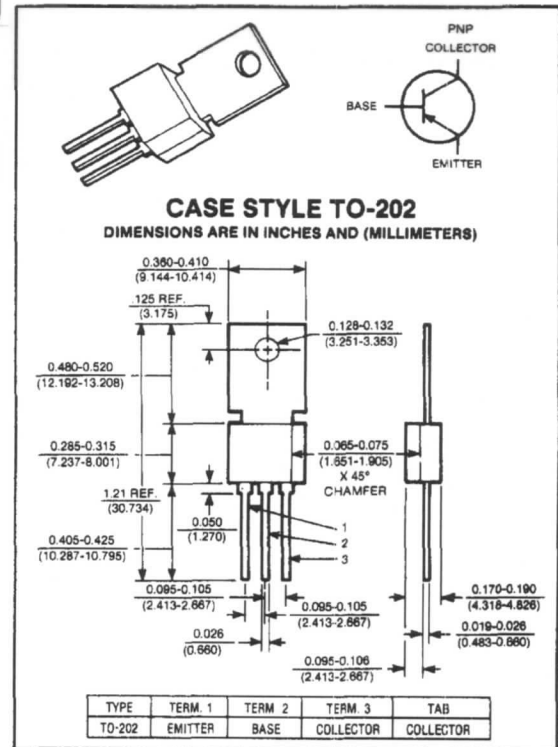
TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

PNP POWER TRANSISTORS

COMPLEMENTARY TO THE D40E SERIES

Features:

- High free-air power dissipation
- PNP complement to D40E NPN
- Low collector saturation voltage (0.5V typ. @ 1.0A I_C)
- Excellent linearity
- Fast Switching



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

RATING	SYMBOL	D41E1	D41E5	D41E7	UNITS
Collector-Emitter Voltage	V_{CEO}	-30	-60	-80	Volts
Collector-Emitter Voltage	V_{CES}	-45	-70	-90	Volts
Emitter Base Voltage	V_{EBO}	-5	-5	-5	Volts
Collector Current — Continuous	I_C	-2	-2	-2	A
Peak ⁽¹⁾	I_{CM}	-3	-3	-3	A
Base Current — Continuous	I_B	-1	-1	-1	A
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ @ $T_C = 25^\circ\text{C}$	P_D	1.33 8	1.33 8	1.33 8	Watts
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	-55 to +150	-55 to +150	$^\circ\text{C}$

thermal characteristics

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	75	75	75	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	15.6	15.6	15.6	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	T_L	+260	+260	+260	$^\circ\text{C}$

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

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Quality Semi-Conductors

electrical characteristics ($T_C = 25^\circ\text{C}$) (unless otherwise specified)

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
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off characteristics⁽¹⁾

Collector-Emitter Sustaining Voltage ($I_C = 10\text{mA}$)	D41E1 D41E5 D41E7	$V_{CEO(sus)}$	-30 -60 -80	— — —	— — —	Volts
Collector Cutoff Current ($V_{CE} = \text{Rated } V_{CES}$)		I_{CES}	—	—	-0.1	μA
Emitter Cutoff Current ($V_{EB} = 5\text{V}$)		I_{EBO}	—	—	-0.1	μA

second breakdown

Second Breakdown with Base Forward Biased	FBSOA	SEE FIGURE 1
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on characteristics

DC Current Gain ($I_C = -100\text{mA}$, $V_{CE} = -2\text{V}$) ($I_C = -1\text{A}$, $V_{CE} = -2\text{V}$)	h_{FE} h_{FE}	50 10	— —	— —	— —
Collector-Emitter Saturation Voltage ($I_C = -1.0\text{A}$, $I_B = -0.1\text{A}$)	$V_{CE(sat)}$	—	—	1.0	Volts
Base-Emitter Saturation Voltage ($I_C = 1.0\text{mA}$, $I_B = 0.1\text{A}$)	$V_{BE(sat)}$	—	—	-1.3	Volts

dynamic characteristics

Collector Capacitance ($V_{CB} = -10\text{V}$, $f = 1\text{MHz}$)	C_{CBO}	—	13	—	pF
Current-Gain Bandwidth Product ($I_C = -100\text{mA}$, $V_{CE} = -10\text{V}$)	f_T	—	175	—	MHz

switching characteristics

Resistive Load						
Delay Time + Rise Time	$I_C = -1\text{A}$, $I_{B1} = I_{B2} = -0.1\text{A}$ $V_{CC} = 30\text{V}$, $t_p = 25\text{ }\mu\text{sec}$	$t_d + t_r$	—	180	—	nS
Storage Time		t_s	—	250	—	
Fall Time		t_f	—	110	—	

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

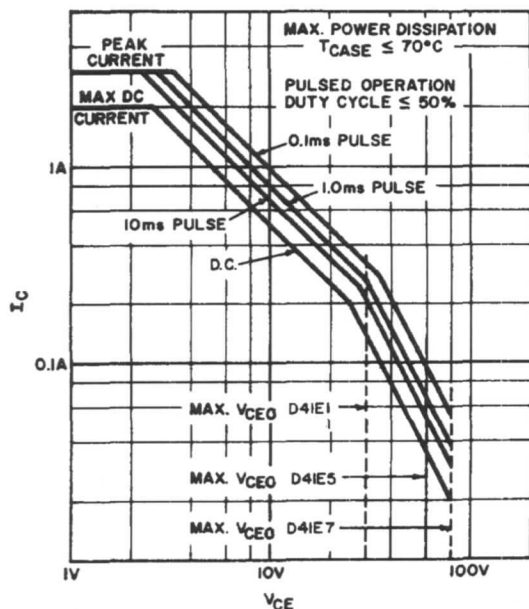


FIG. 1 SAFE REGION OF OPERATION

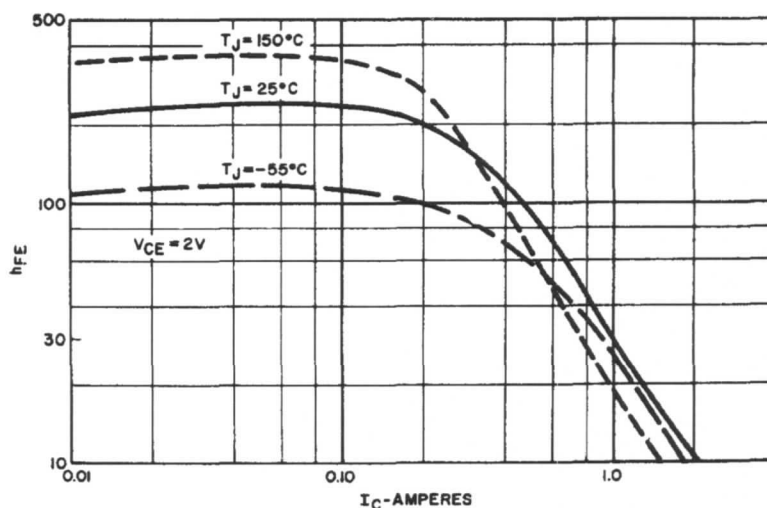


FIG. 2 TYPICAL H_{FE} VS I_C