

NPN SILICON PLANAR MEDIUM-POWER HIGH-VOLTAGE TRANSISTOR
Features

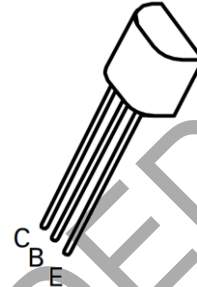
- 400 Volt V_{CE0}
- 0.5 Amp continuous current
- $P_{tot} = 1$ Watt
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative.
<https://www.diodes.com/quality/product-definitions/>

Applications

- Telephone dialer circuits

Pin Assignments

E-Line (TO92 Compatible)


Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	400	V
Collector-Emitter Voltage	V_{CE0}	400	V
Emitter-Base Voltage	V_{EB0}	5	V
Peak Pulse Current	I_{CM}	1	A
Continuous Collector Current	I_C	500	mA
Power Dissipation at $T_{amb} = +25^{\circ}C$ Derate above $+25^{\circ}C$	P_{tot}	1 5.7	W mW/ $^{\circ}C$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +200	$^{\circ}C$

Electrical Characteristics (@ $T_{amb} = +25^{\circ}C$, unless otherwise stated.)

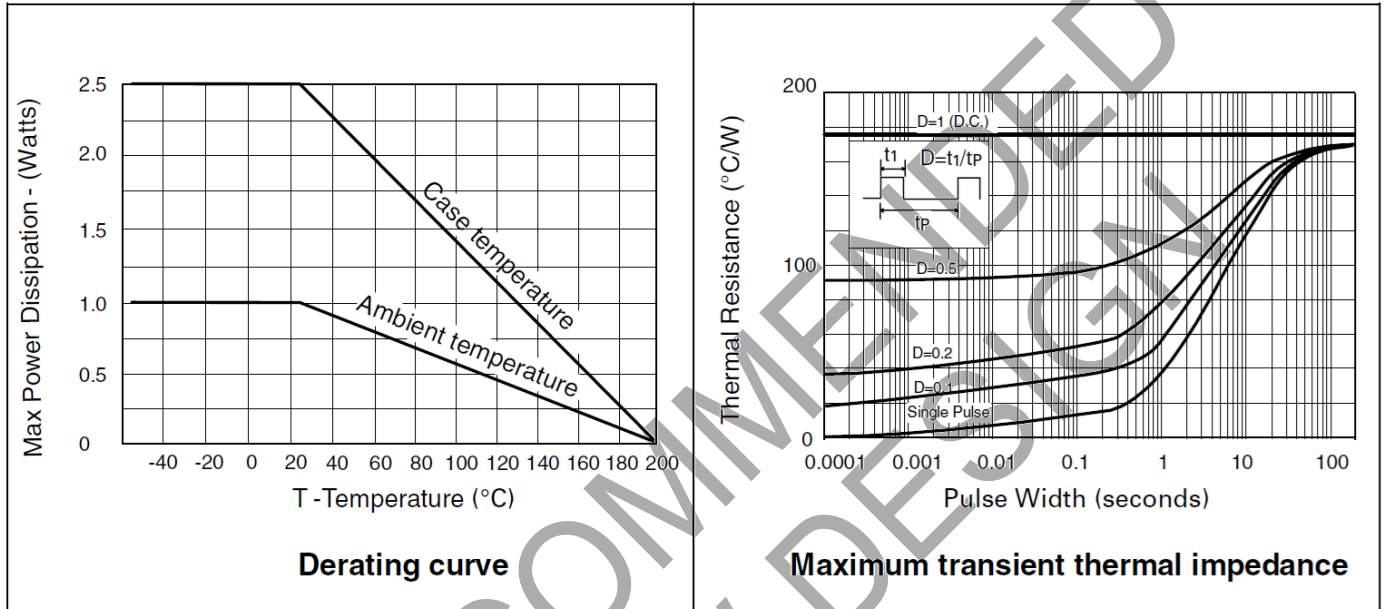
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	400	—	—	V	$I_C = 100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	400	—	—	V	$I_C = 10mA$ (Note 1)
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 100\mu A$
Collector Cutoff Current	I_{CBO}	—	—	100	nA	$V_{CB} = 320V$
Collector Cutoff Current	I_{CBO}	—	—	100	nA	$V_{CE} = 320V$
Emitter Cutoff Current	I_{EBO}	—	—	100	nA	$V_{EB} = 4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	0.3 0.25 0.5	V	$I_C = 20mA, I_B = 1mA$ $I_C = 50mA, I_B = 5mA$ (Note 1) $I_C = 100mA, I_B = 10mA$ (Note 1)
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	0.9	V	$I_C = 100mA, I_B = 10mA$ (Note 1)
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	—	—	0.9	V	$I_C = 100mA, V_{CE} = 5V$ (Note 1)
Static Forward Current Transfer Ratio	h_{FE}	50 50 40	— — —	— — —	—	$I_C = 1mA, V_{CE} = 5V$ (Note 1) $I_C = 100mA, V_{CE} = 5V$ (Note 1) $I_C = 200mA, V_{CE} = 10V$ (Note 1)
Transition Frequency	f_T	50	—	—	MHz	$I_C = 20mA, V_{CE} = 20V$ $f = 20MHz$
Output Capacitance	C_{obo}	—	—	10	pF	$V_{CB} = 20V, f = 1MHz$
Switching Times	t_{on} t_{off}	— —	130 3300	— —	ns	$I_C = 100mA, V_C = 100V$ $I_{B1} = 10mA, I_{B2} = -20mA$

Note: 1. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

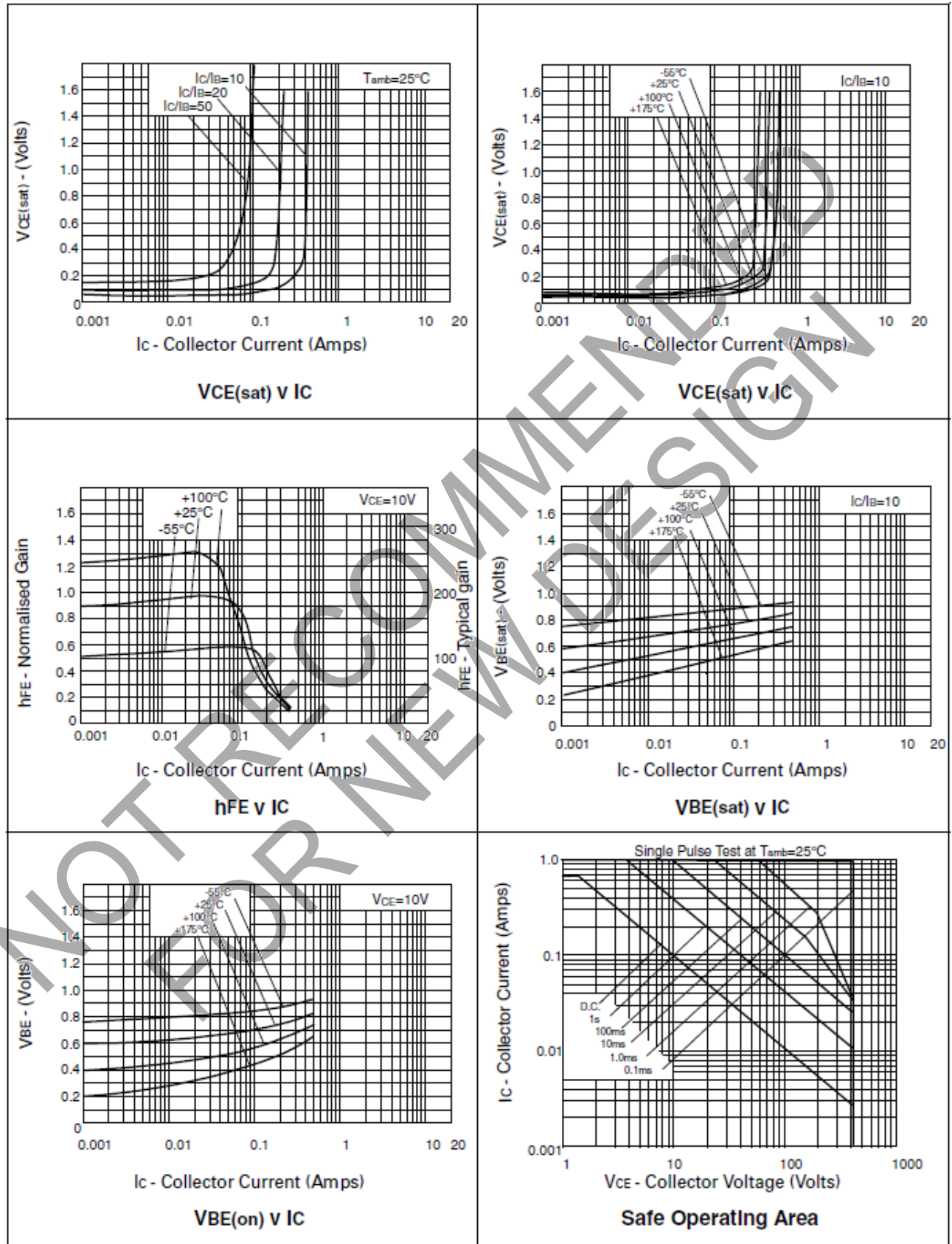
Thermal Characteristics

Parameter	Symbol	Max	Unit
Thermal Resistance	Junction to Ambient ¹	175	°C/W
	Junction to Ambient ²	116	
	Junction to Case	70	

Note: 2. Device mounted on PCB with copper equal to 1 sq. inch minimum.

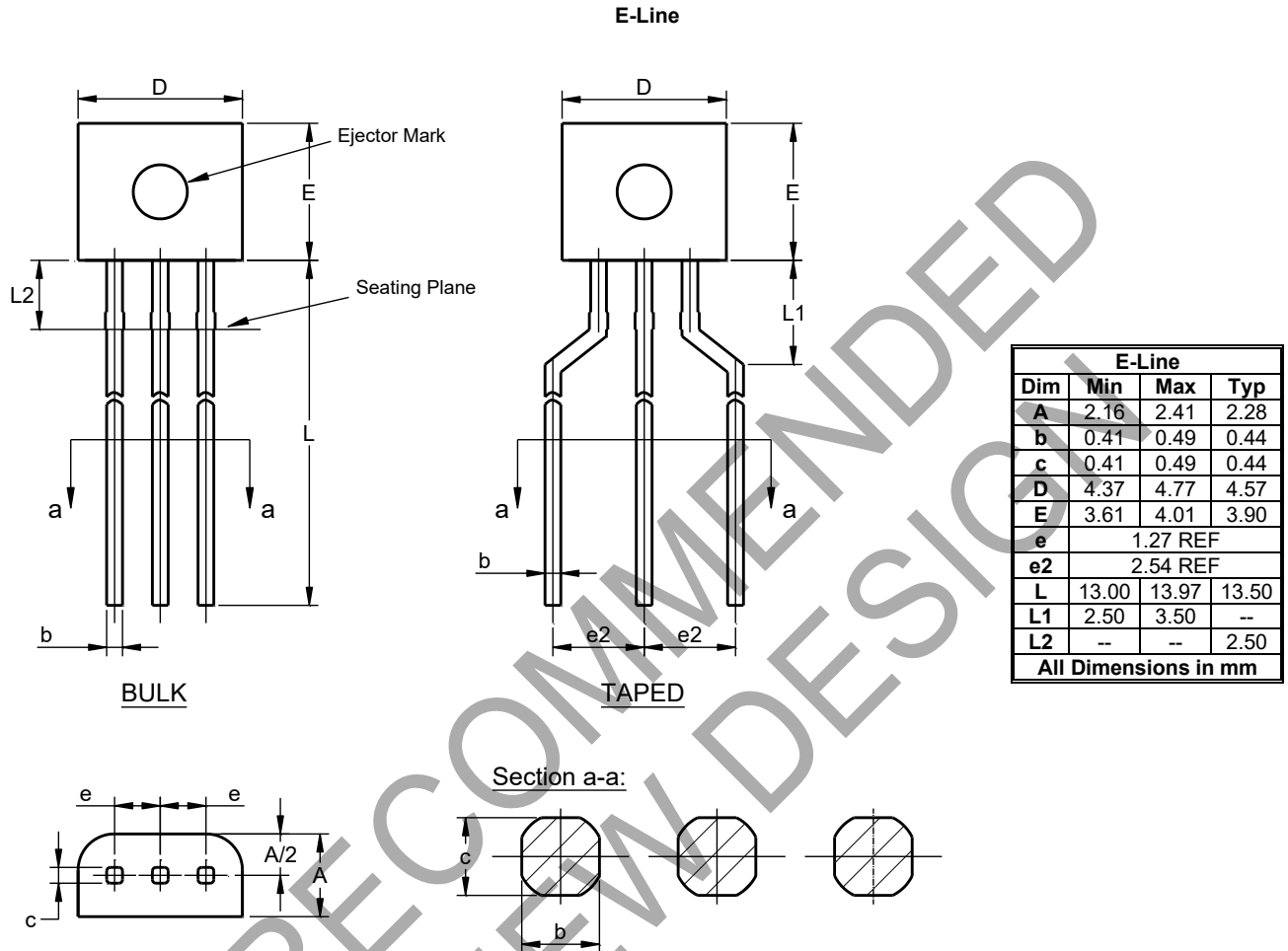


Typical Characteristics



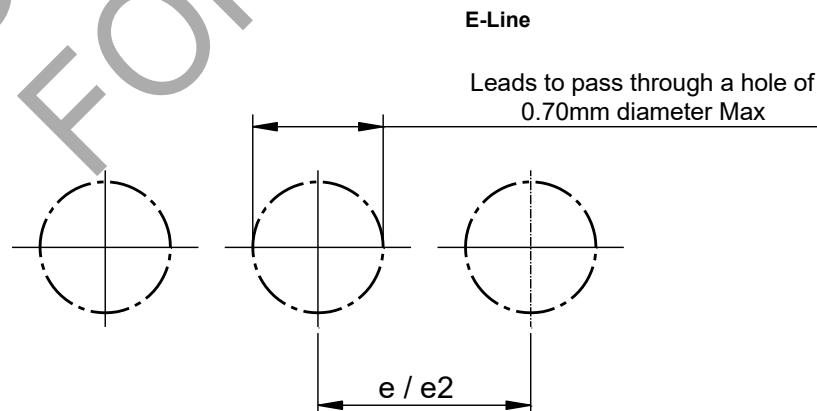
Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



Suggested Pad Layout

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