

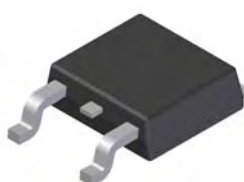
50V PNP SURFACE MOUNT TRANSISTOR IN TO252-3L
Features

- Epitaxial Planar Die Construction
- Low Collector-Emitter Saturation Voltage
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **"Lead Free", RoHS Compliant (Note 1)**
- **Halogen and Antimony Free. "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

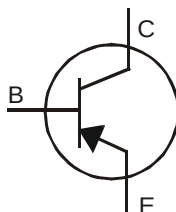
Mechanical Data

- Case: TO252-3L
- Case Material: Molded Plastic, "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin annealed over Copper Leadframe
(Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.34 grams (approximate)

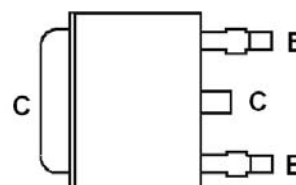
TO252-3L



Top View



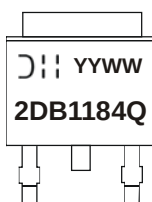
Device Schematic


 Pin Out Configuration
Top view

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
2DB1184Q-13	2DB1184Q	13	16	2,500

- Notes:
1. No purposefully added lead
 2. Diodes Inc's "Green" policy can be found on our website at <http://www.diodes.com>.
 3. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information


2DB1184Q = Product Type Marking Code
 ⑈ = Manufacturers' code marking
 YYWW = Date Code Marking
 YY = Last Digit of Year, (ex: 08 = 2008)
 WW = Week Code 01-52

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-60	V
Collector-Emitter Voltage	V _{CEO}	-50	V
Emitter-Base Voltage	V _{EBO}	-5	V
Continuous Collector Current	I _C	-3	A
Peak Pulse Collector Current	I _{CM}	-4.5	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	15	W
Thermal Resistance, Junction to Case	R _{θJC}	8.3	°C/W
Power Dissipation (Note 4)	P _D	1.2	W
Thermal Resistance, Junction to Ambient	R _{θJA}	104	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 4. Device mounted on FR-4 PCB with minimum pad size recommended.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Collector-Base Breakdown Voltage	BV _{CBO}	-60	—	—	V	I _C = -50μA, I _E = 0
Collector-Emitter Breakdown Voltage	BV _{CEO}	-50	—	—	V	I _C = -1mA, I _B = 0
Emitter-Base Breakdown Voltage	BV _{EBO}	-5	—	—	V	I _E = -50μA, I _C = 0
Collector Cutoff Current	I _{CBO}	—	—	-1	μA	V _{CB} = -40V, I _E = 0
Emitter Cutoff Current	I _{EBO}	—	—	-1	μA	V _{EB} = -4V, I _C = 0
ON CHARACTERISTICS (Note 5)						
Collector-Emitter Saturation Voltage	V _{CE(sat)}	—	—	-1	V	I _C = -2A, I _B = -0.2A
Base-Emitter Saturation Voltage	V _{BE(sat)}	—	—	-1.2	V	I _C = -1.5A, I _B = -0.15A
DC Current Gain	h _{FE}	120	—	270	—	V _{CE} = -3V, I _C = -0.5A
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f _T	—	110	—	MHz	V _{CE} = -5V, I _C = -0.1A, f = 30MHz
Output Capacitance	C _{obo}	—	26	—	pF	V _{CB} = -10V, f = 1MHz

Notes: 5. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

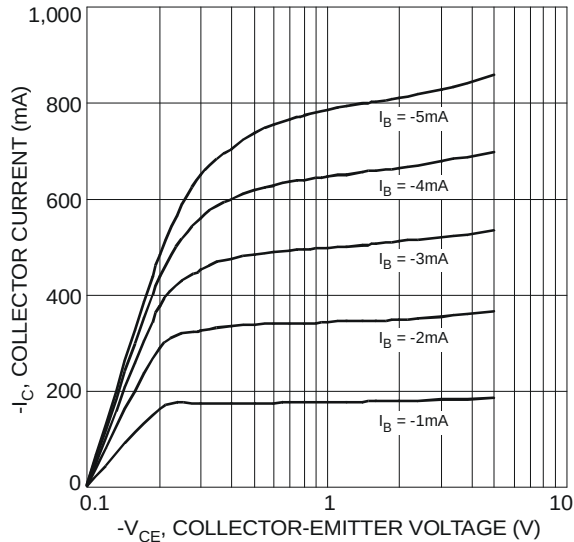


Fig. 1 Typical Collector Current vs. Collector-Emitter Voltage

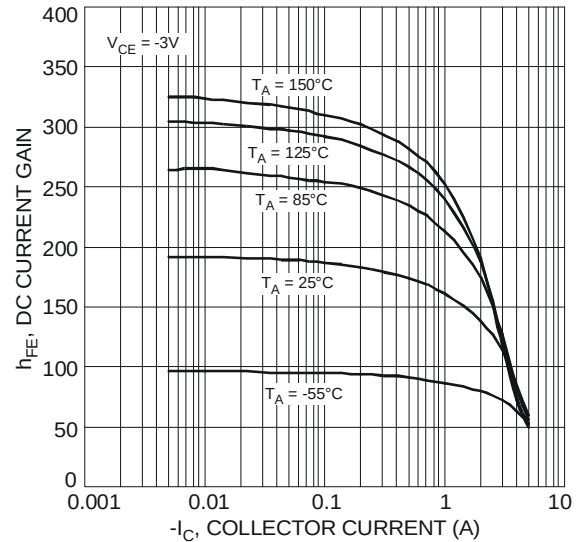


Fig. 2 Typical DC Current Gain vs. Collector Current

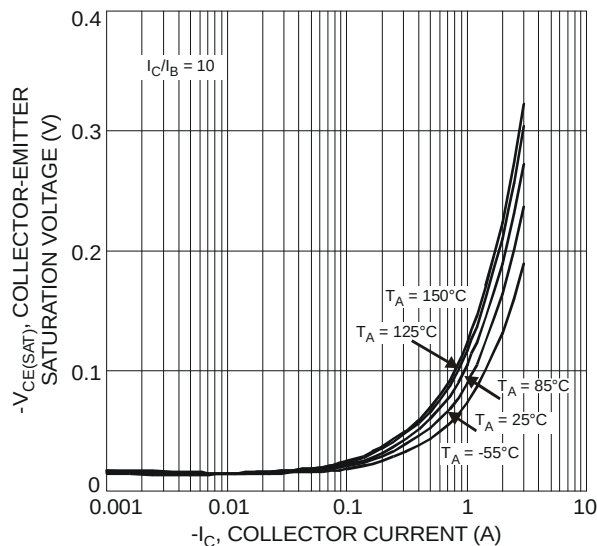


Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

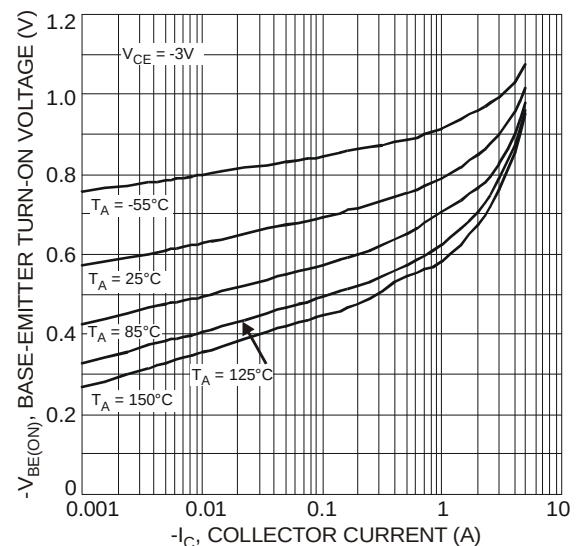


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

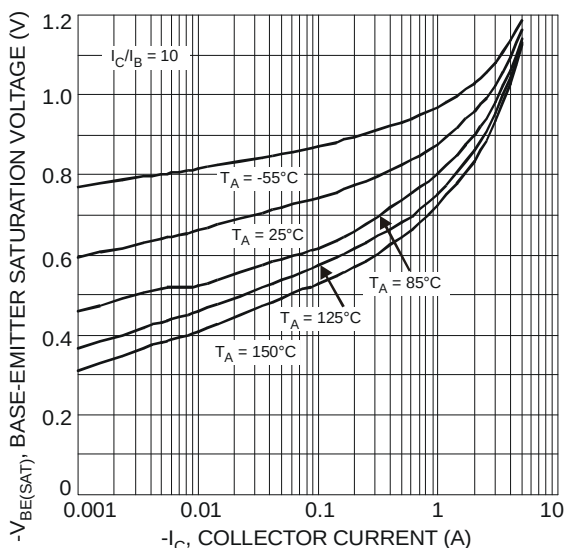


Fig. 5 Typical Base-Emitter Saturation Voltage vs. Collector Current

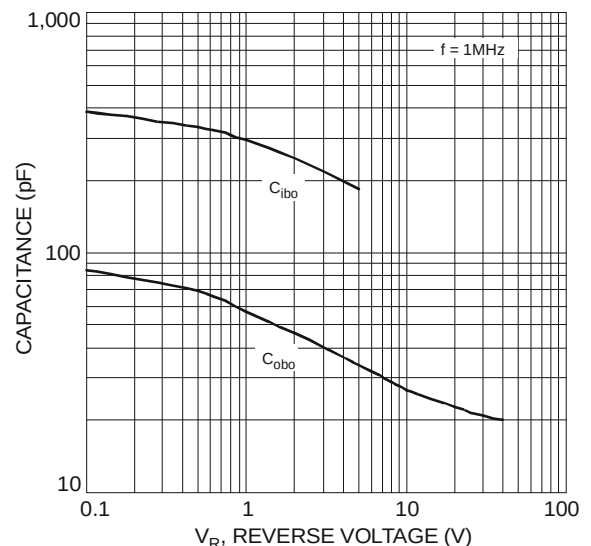


Fig. 6 Typical Capacitance Characteristics

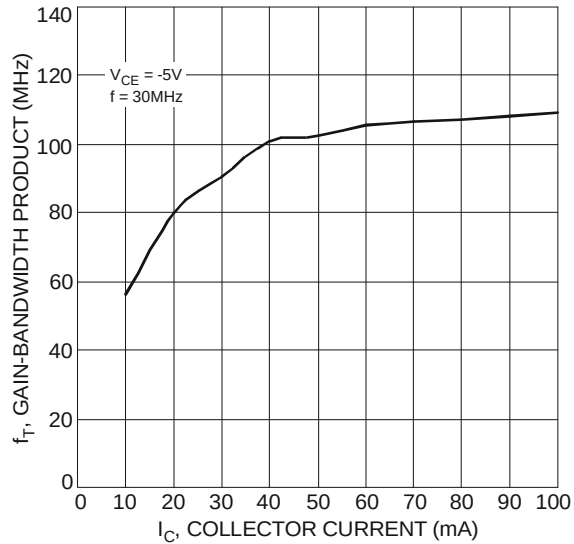


Fig. 7 Typical Gain-Bandwidth Product vs. Collector Current

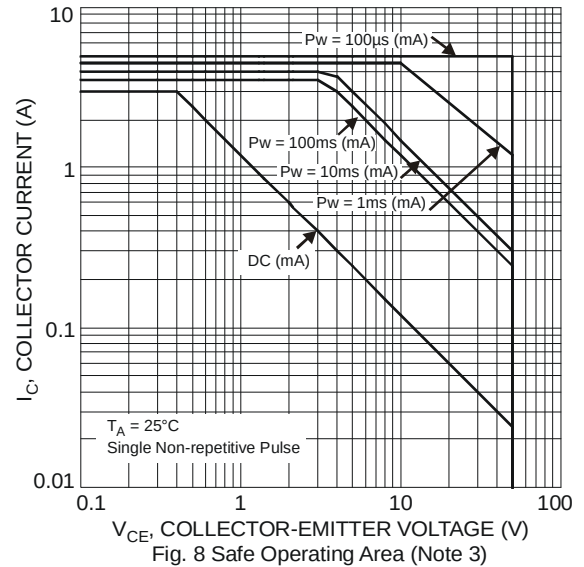


Fig. 8 Safe Operating Area (Note 3)

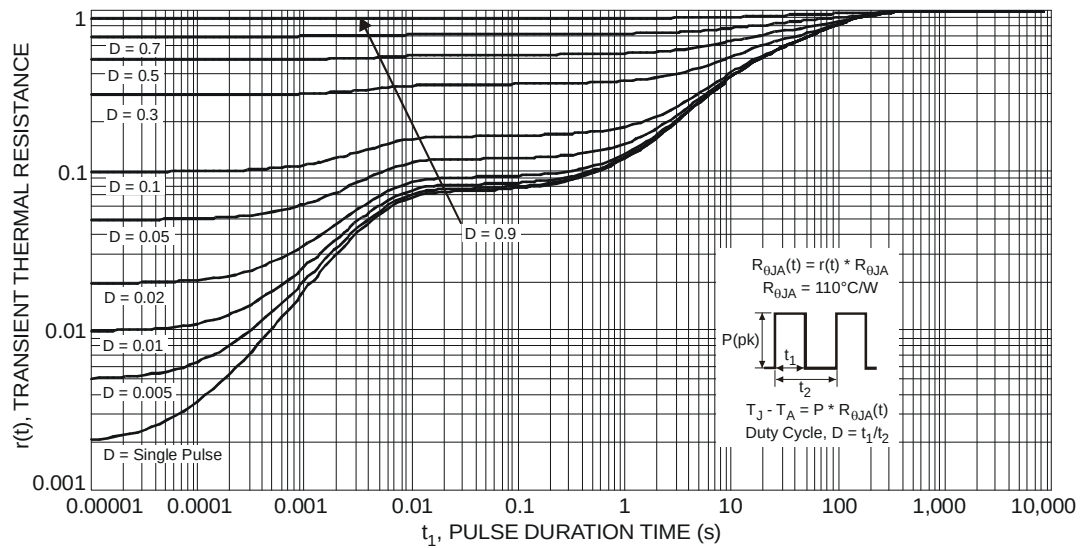
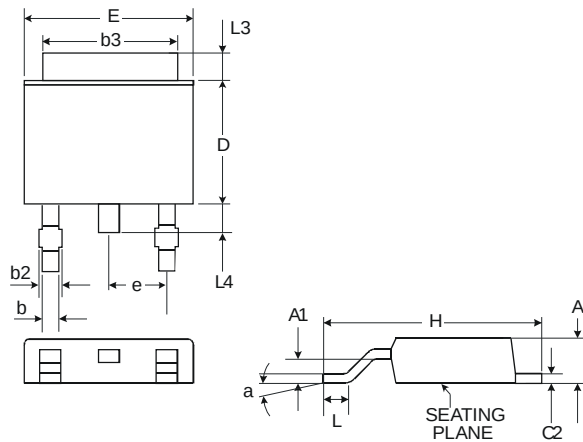


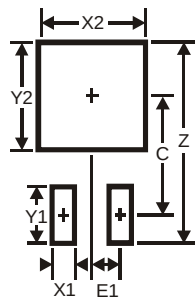
Fig. 9 Transient Thermal Response

Package Outline Dimensions



TO252-3L			
Dim	Min	Typ	Max
A	2.19	2.29	2.39
A1	0.97	1.07	1.17
b	0.64	0.76	0.88
b2	0.76	0.95	1.14
b3	5.21	5.33	5.50
C2	0.45	0.51	0.58
D	6.00	6.10	6.20
E	6.45	6.58	6.70
e	2.286 Typ.		
H	9.40	9.91	10.41
L	1.40	1.59	1.78
L3	0.88	1.08	1.27
L4	0.64	0.83	1.02
a	0°	-	10°
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
C	6.9
E1	2.3

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