

DUAL 20V PNP LOW SATURATION SWITCHING TRANSISTOR

Features

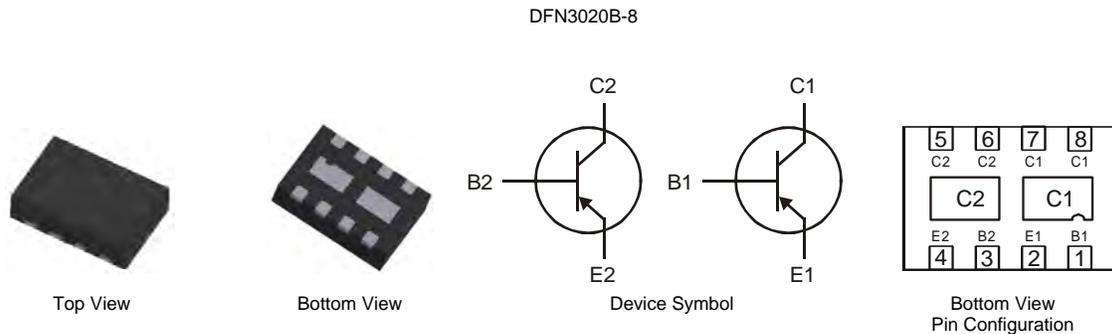
- $V_{CE0} = -20V$;
- $R_{SAT} = 64\ m\Omega$;
- $I_C = -3.5A$ Continuous Collector Current
- Low Saturation Voltage ($-220mV @ -1A$)
- h_{FE} characterized up to $-6A$
- **Lead, Halogen, and Antimony Free/RoHS Compliant (Note 1)**
- **“Green” Devices (Note 2)**

Applications

- Battery charging circuits
- Load disconnect switches
- Motor drive

Mechanical Data

- Case: DFN3020B-8
- Case material: Molded Plastic. “Green” Molding Compound.
- UL Flammability Rating 94V-0
- Terminals: Pre-Plated NiPdAu leadframe.
- Nominal package height: 0.8mm
- Moisture Sensitivity: Level 1 per J-STD-020
- Solderable per MIL-STD-202, Method 208
- Weight: 0.013 grams (approximate)



Ordering Information

Product	Status	Package	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTD718MCTA	Active	DFN3020B-8	D22	7	8	3000

Notes: 1. No purposefully added lead. Halogen and Antimony Free.
2. Diodes Inc's “Green” Policy can be found on our website

Marking Information



D22 = Product type Marking Code
Dot denotes Pin 1

Maximum Ratings

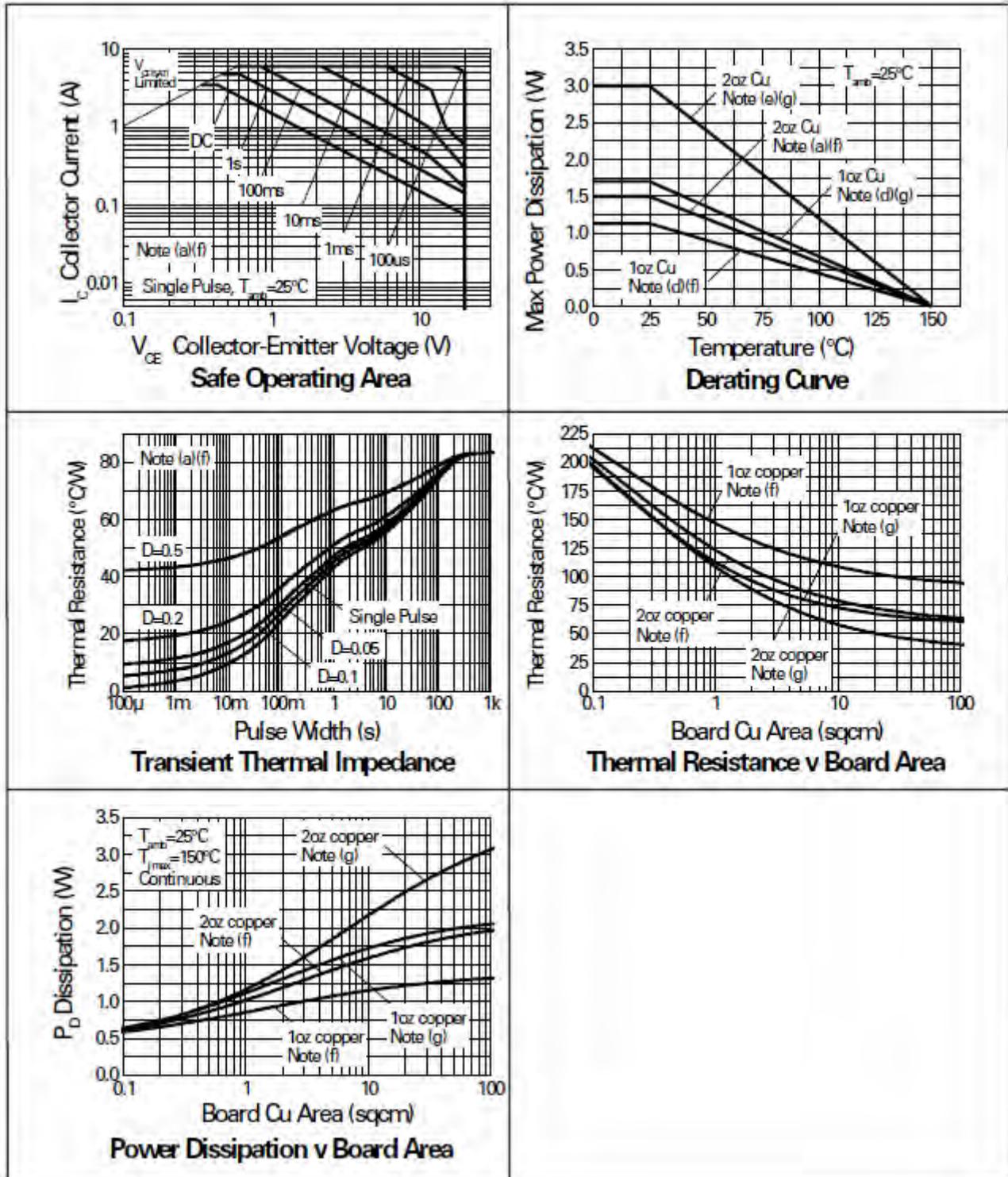
Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	-25	V
Collector-Emitter Voltage	V_{CEO}	-20	V
Emitter-Base Voltage	V_{EBO}	-7.5	V
Peak Pulse Current	I_{CM}	-6	A
Continuous Collector Current (a) (f)	I_C	-3.5	A
Base Current	I_B	-1	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation at $T_A = 25^\circ\text{C}$ (a) (f) Linear Derating Factor	P_D	1.5 12	W mW/°C
Power Dissipation at $T_A = 25^\circ\text{C}$ (b) (f) Linear Derating Factor	P_D	2.45 19.6	W mW/°C
Power Dissipation at $T_A = 25^\circ\text{C}$ (c) (f) Linear Derating Factor	P_D	1 8	W mW/°C
Power Dissipation at $T_A = 25^\circ\text{C}$ (d) (f) Linear Derating Factor	P_D	1.13 9	W mW/°C
Power Dissipation at $T_A = 25^\circ\text{C}$ (d) (g) Linear Derating Factor	P_D	1.7 13.6	W mW/°C
Power Dissipation at $T_A = 25^\circ\text{C}$ (e) (g) Linear Derating Factor	P_D	3 24	W mW/°C
Junction to Ambient (a) (f)	$R_{\theta JA}$	83.3	°C/W
Junction to Ambient (b) (f)	$R_{\theta JA}$	51	°C/W
Junction to Ambient (c) (f)	$R_{\theta JA}$	125	°C/W
Junction to Ambient (d) (f)	$R_{\theta JA}$	111	°C/W
Junction to Ambient (d) (g)	$R_{\theta JA}$	73.5	°C/W
Junction to Ambient (e) (g)	$R_{\theta JA}$	41.7	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

- Notes:
- For a dual device surface mounted on 8 sq cm single sided 2 oz copper on FR4 PCB, in still air conditions **with all exposed pads attached**. The copper area is split down the centre line into two separate areas with one half connected to each half of the dual device.
 - Measured at $t < 5$ secs for a dual device surface mounted on 8 sq cm single sided 2 oz copper on FR4 PCB, in still air conditions **with all exposed pads attached**. The copper area is split down the centre line into two separate areas with one half connected to each half of the dual device.
 - For a dual device surface mounted on 8 sq cm single sided 2 oz copper on FR4 PCB, in still air conditions **with minimal lead connections only**.
 - For a dual device surface mounted on 10 sq cm single sided 1 oz copper on FR4 PCB, in still air conditions **with all exposed pads attached**. The copper area is split down the centre line into two separate areas with one half connected to each half of the dual device.
 - For a dual device surface mounted on 85 sq cm single sided 2 oz copper on FR4 PCB, in still air conditions **with all exposed pads attached**. The copper area is split down the centre line into two separate areas with one half connected to each half of the dual device.
 - For a dual device with one active die.
 - For dual device with 2 active die running at equal power.

Thermal Characteristics and Derating information

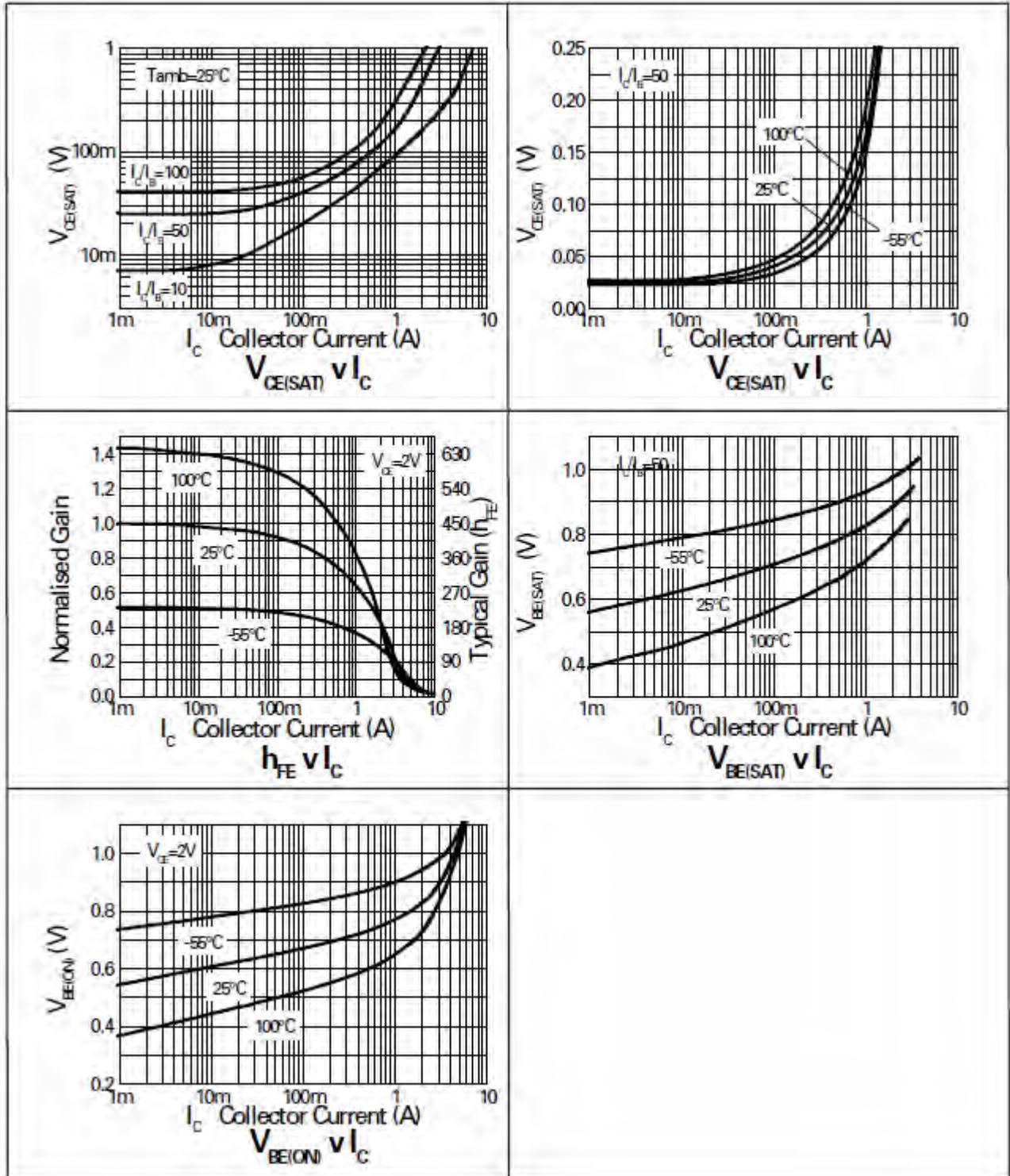


Electrical Characteristics @T_A = 25°C unless otherwise specified

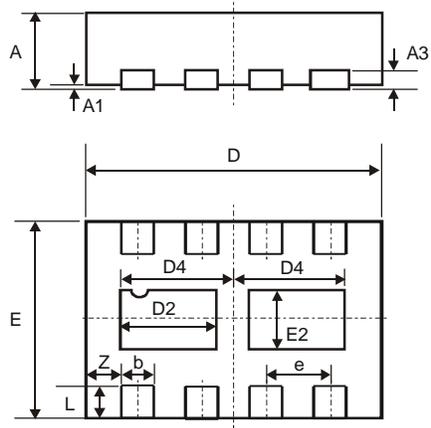
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-25	-35	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 3)	V _{(BR)CEO}	-20	-25	-	V	I _C = 10mA
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-7.5	8.5	-	V	I _E = -100μA
Collector Cutoff Current	I _{CBO}	-	-	-25	nA	V _{CB} = -20V
Emitter Cutoff Current	I _{EBO}	-	-	-25	nA	V _{EB} = -6V
Collector Emitter Cutoff Current	I _{CES}	-	-	-25	nA	V _{CES} = -16V
Static Forward Current Transfer Ratio (Note 3)	h _{FE}	300	475	-	-	I _C = -10mA, V _{CE} = -2V
		300	450	-		I _C = -100mA, V _{CE} = -2V
		150	230	-		I _C = -2A, V _{CE} = -2V
		15	30	-		I _C = -6A, V _{CE} = -2V
Collector-Emitter Saturation Voltage (Note 3)	V _{CE(sat)}	-	-19	-30	mV	I _C = -0.1A, I _B = -10mA
		-	-170	-220		I _C = -1A, I _B = -20mA
		-	-190	-250		I _C = -1.5A, I _B = -50mA
		-	-240	-350		I _C = -2.5A, I _B = -150mA
		-	-225	-300		I _C = -3.5A, I _B = -350mA
Base-Emitter Turn-On Voltage (Note 3)	V _{BE(sat)}	-	-0.87	-0.95	V	I _C = -3.5A, V _{CE} = -2V
Base-Emitter Saturation Voltage (Note 3)	V _{BE(sat)}	-	-1.01	-1.075	V	I _C = -3.5A, I _B = -350mA
Output Capacitance	C _{obo}	-	21	30	pF	V _{CB} = 10V, f = 1MHz
Transition Frequency	f _T	150	180	-	MHz	V _{CE} = -10V, I _C = -50mA, f = 100MHz
Turn-On Time	t _{on}	-	40	-	ns	V _{CC} = -10V, I _C = 1A
Turn-Off Time	t _{off}	-	670	-	ns	I _{B1} = I _{B2} = 20mA

Notes: 3. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%

Typical Characteristics

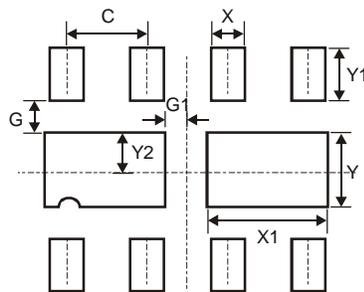


Package Outline Dimensions



DFN3020B-8			
Dim	Min	Max	Typ
A	0.77	0.83	0.80
A1	0	0.05	0.02
A3	-	-	0.15
b	0.25	0.35	0.30
D	2.95	3.075	3.00
D2	0.82	1.02	0.92
D4	1.01	1.21	1.11
e	-	-	0.65
E	1.95	2.075	2.00
E2	0.43	0.63	0.53
L	0.25	0.35	0.30
Z	-	-	0.375
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
C	0.650
G	0.285
G1	0.090
X	0.400
X1	1.120
Y	0.730
Y1	0.500
Y2	0.365

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