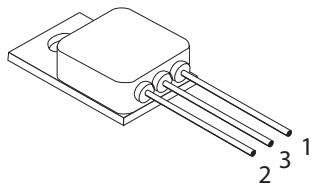
BUX78ESY
BUX78HR

Hi-Rel PNP bipolar transistor 80 V - 5 A

Features

BV_{CEO}	80 V
I_C (max)	5 A
H_{FE} at 10 V - 150 mA	> 70
Operating temperature range	-65°C to +200°C

- Hi-Rel PNP bipolar transistor
- Linear gain characteristics
- ESCC qualified
- European preferred part list - EPPL
- Radiation level: lot specific total dose contact marketing for specified level



TO-257

Description

The BUX78HR is a silicon planar epitaxial PNP transistor in TO-257 package. It is specifically designed for aerospace Hi-Rel applications and ESCC qualified according to the 5204-006 specification. In case of conflict between this datasheet and ESCC detailed specification, the latter prevails.

Figure 1. Internal schematic diagram

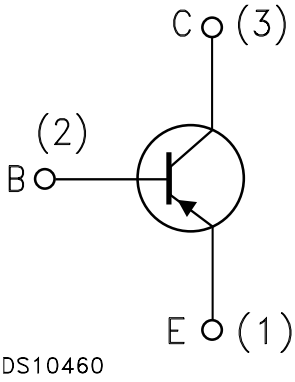


Table 1. Device summary

Order codes	Package	Lead finish	Marking	Type	EPPL	Packaging
BUX78ESYHRB	TO-257	Gold Solder Dip	520400606 520400607	ESCC Flight	Yes	Strip pack
BUX78ESY	TO-257	Gold	BUX78ESY	Engineering model		Strip pack

1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage (I_E = 0)	-100	V
V_{CEO}	Collector-emitter voltage (I_B = 0)	-80	V
V_{EBO}	Emitter-base voltage (I_C = 0)	-6	V
I_C	Collector current	-5	A
P_{TOT}	Total dissipation at $T_C \leq 25$ °C	35	W
T_{STG}	Storage temperature	-65 to 200	°C
T_J	Max. operating junction temperature	200	°C

Table 3. Thermal data

Symbol	Parameter		Value	Unit
R_{thJC}	Thermal resistance junction-case	max	5	°C/W

2 Electrical characteristics

T_{case} = 25 °C unless otherwise specified.

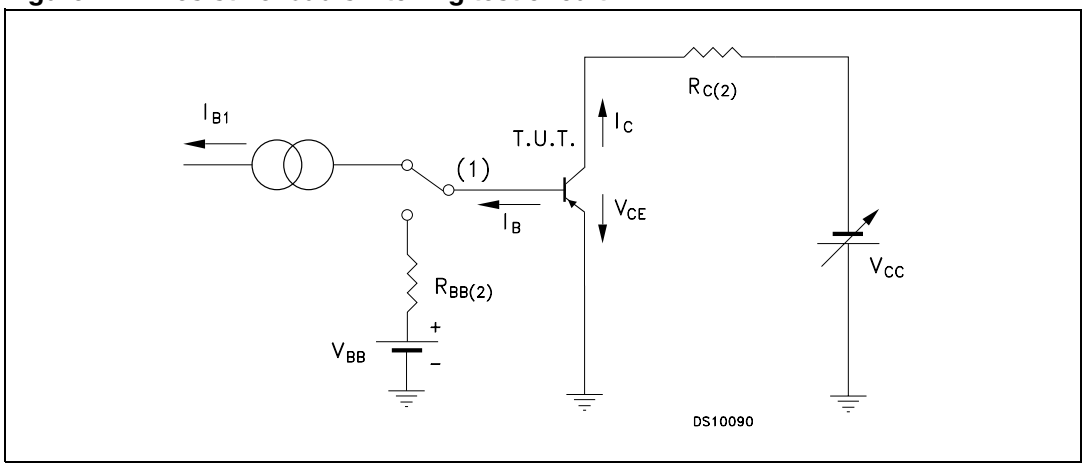
Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current (I_E = 0)	V_{CB} = - 80 V V_{CB} = - 80 V T_{amb} = 150 °C		-	-0.5 -150	µA µA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = - 60 V		-	-10	µA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = - 4 V		-	-0.5	µA
$V_{(BR)CES}$	Collector-emitter breakdown voltage (V_{BE} = 0)	I_C = - 2 mA	-100	-		V
$V_{(BR)CEO}$ (1)	Collector-emitter breakdown voltage (I_B = 0)	I_C = - 50 mA	-80	-		V
$V_{(BR)EBO}$	Emitter-base breakdown voltage (I_C = 0)	I_E = - 1 mA	-6	-		V
$V_{CE(sat)}$ (1)	Collector-emitter saturation voltage	I_C = - 5 A I_B = - 0.5 A		-	-1	V
$V_{BE(sat)}$ (1)	Base-emitter saturation voltage	I_C = - 5 A I_B = - 0.5 A		-	-1.3	V
h_{FE} (1)	DC current gain	I_C = - 0.5 A V_{CE} = - 5 V I_C = - 2 A V_{CE} = - 5 V I_C = - 5 A V_{CE} = - 5 V I_C = - 1 A V_{CE} = - 5 V T_{amb} = - 55 °C	70 50 30 25	-	200	
h_{fe}	A.C. forward current transfer ratio	V_{CE} = -5 V I_C = - 0.5 A f = 20 MHz	2.5	-		
t_{on}	Turn-on time	V_{CC} = - 40 V_C = - 5 A V_{BB} = - 4 V I_{B1} = -I_{B2} = - 0.5 A		-	0.3	µs
t_{off}	Turn-off time	V_{CC} = - 40 V I_C = - 5 A V_{BB} = - 4 V I_{B1} = -I_{B2} = - 0.5 A		-	0.7	µs

1. Pulsed duration = 300 µs, duty cycle ≤ 1.5 %

2.1 Test circuit

Figure 2. Resistive load switching test circuit



1. Fast electronic switch
2. Non-inductive resistor

3 Package mechanical data

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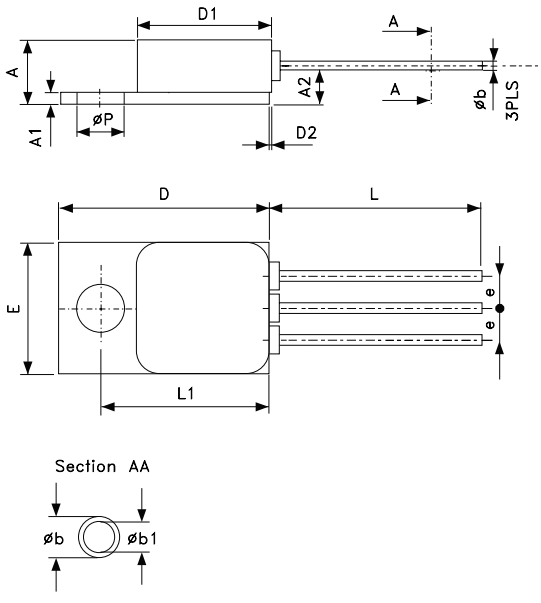
TO-257 mechanical data

DIM.	mm.		
	MIN.	TYP	MAX.
A	4.83		5.08
A1	0.89		1.14
A2		3.05	
b	0.64		1.02
b1	0.64	0.76	0.89
D	16.38		16.89
D1	10.41		10.92
D2			0.97
e		2.54	
E	10.41		10.67
L	12.70		19.05
L1	13.39		13.64
P	3.56		3.81



4 Revision history

Table 5. Document revision history

Date	Revision	Changes
12-Jan-2010	1	Initial release

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