

- Designed Specifically for High Frequency Electronic Ballasts
- Integrated Fast t_{rr} Anti-parallel Diode, Enhancing Reliability
- Diode t_{rr} Typically 500 ns
- New Ultra Low-Height SOIC Power Package
- Tightly Controlled Transistor Storage Times
- Voltage Matched Integrated Transistor and Diode
- Characteristics Optimised for Cool Running
- Diode-Transistor Charge Coupling Minimised to Enhance Frequency Stability
- Custom Switching Selections Available
- Surface Mount and Through-Hole Options

PACKAGE	PART # SUFFIX
Small-outline	D
Small-outline taped and reeled	DR
Single-in-line	SL

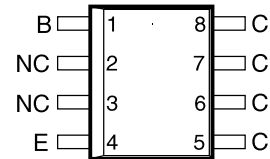
description

The new BULDxx range of transistors have been designed specifically for use in High Frequency Electronic Ballasts (HFEB's). This range of switching transistors has tightly controlled storage times and an integrated fast t_{rr} anti-parallel diode. The revolutionary design ensures that the diode has both fast forward and reverse recovery times, achieving the same performance as a discrete anti-parallel diode plus transistor.

The integrated diode has minimal charge coupling with the transistor, increasing frequency stability, especially in lower power circuits where the circulating currents are low. By design, this new device offers a voltage matched integrated transistor and anti-parallel diode.

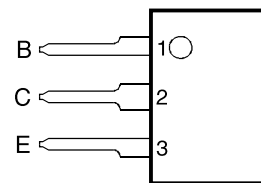
This device is available in the now well established 8 pin low height surface mount D package, and the TO-220 pin compatible SL package. Use of the SL package allows for a 40% height saving, making it ideal for compact ballast applications.

D PACKAGE
(TOP VIEW)

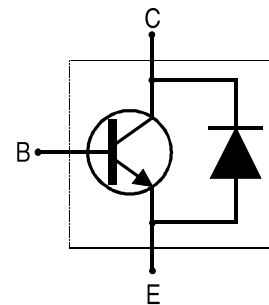


NC - No internal connection

SL PACKAGE
(TOP VIEW)

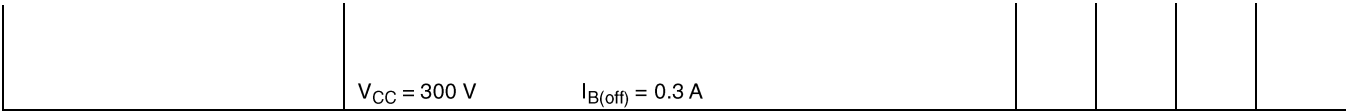


device symbol



absolute maximum ratings at 25°C ambient temperature (unless otherwise noted)

RATING	SYMBOL	VALUE	UNIT
Collector-emitter voltage ($V_{BE} = 0$)	V_{CES}	600	V
Collector-base voltage ($I_E = 0$)	V_{CBO}	600	V
Collector-emitter voltage ($I_B = 0$)	V_{CEO}	400	V
Emitter-base voltage	V_{EBO}	9	V



TYPICAL CHARACTERISTICS

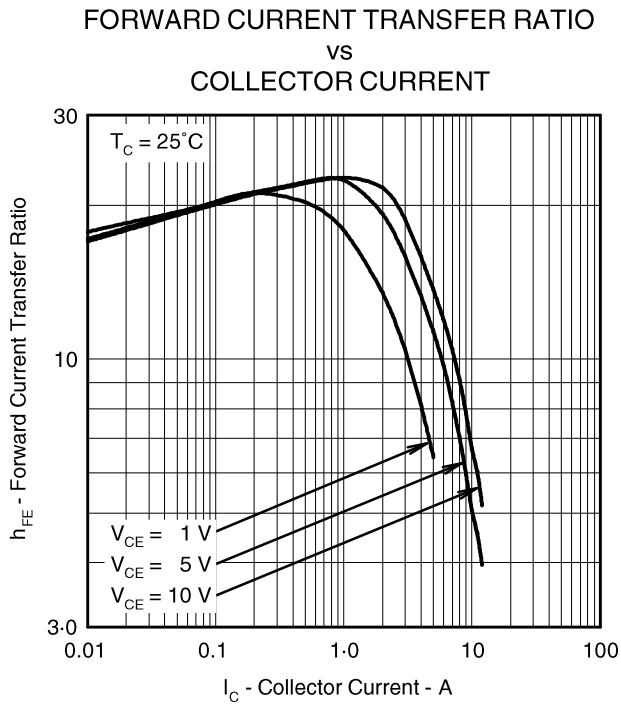


Figure 1.

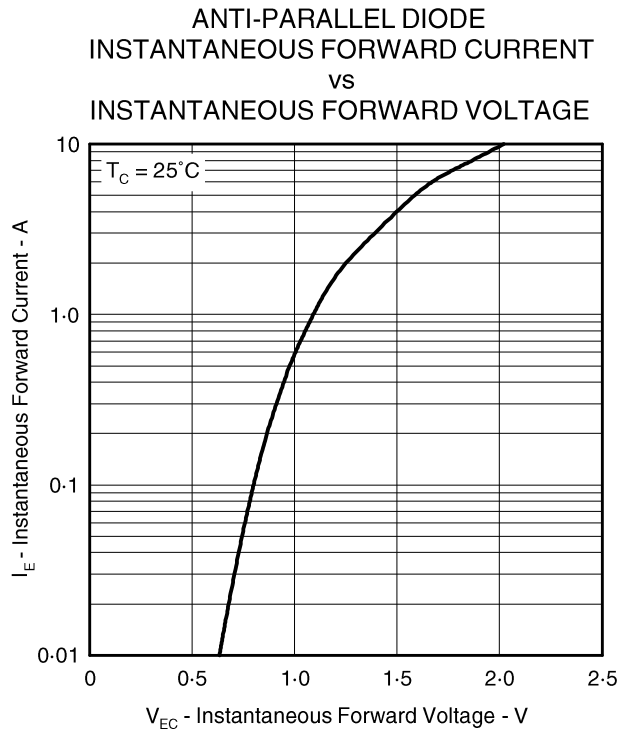


Figure 2.

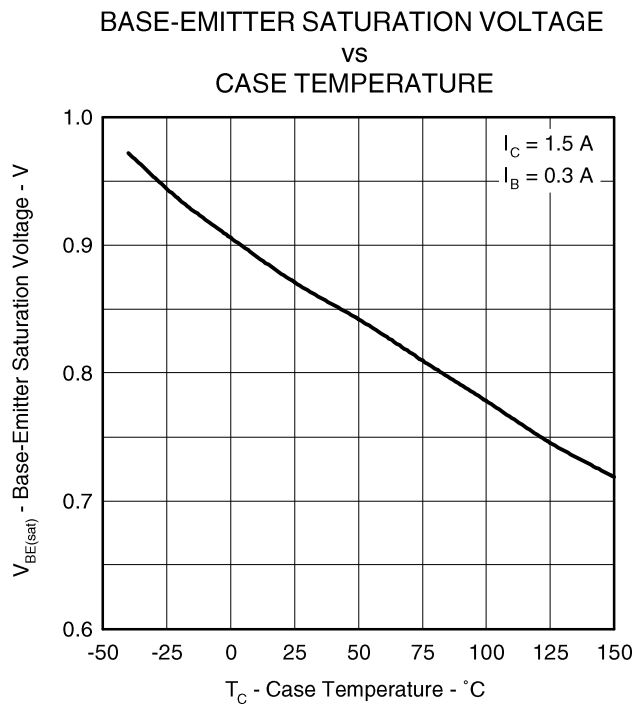


Figure 3.

BULD125KC NPN SILICON TRANSISTOR WITH INTEGRATED DIODE

MAXIMUM SAFE OPERATING REGIONS

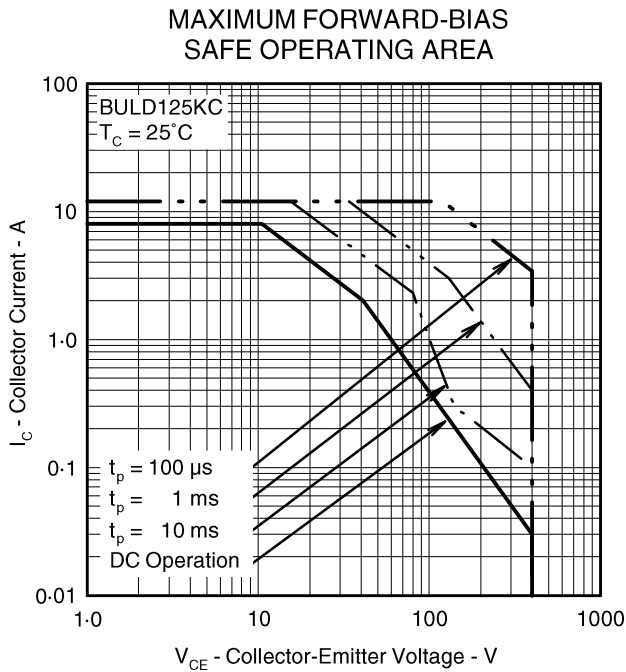


Figure 4.

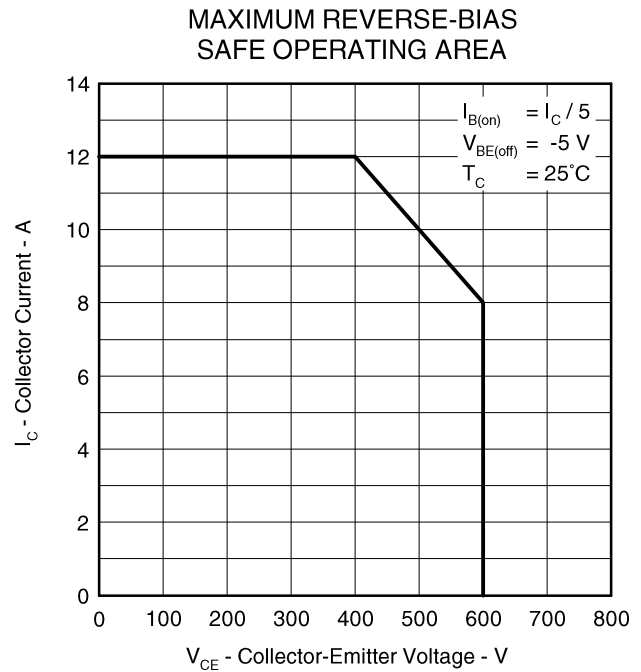


Figure 5.

THERMAL INFORMATION

THERMAL RESPONSE JUNCTION TO AMBIENT VS POWER PULSE DURATION

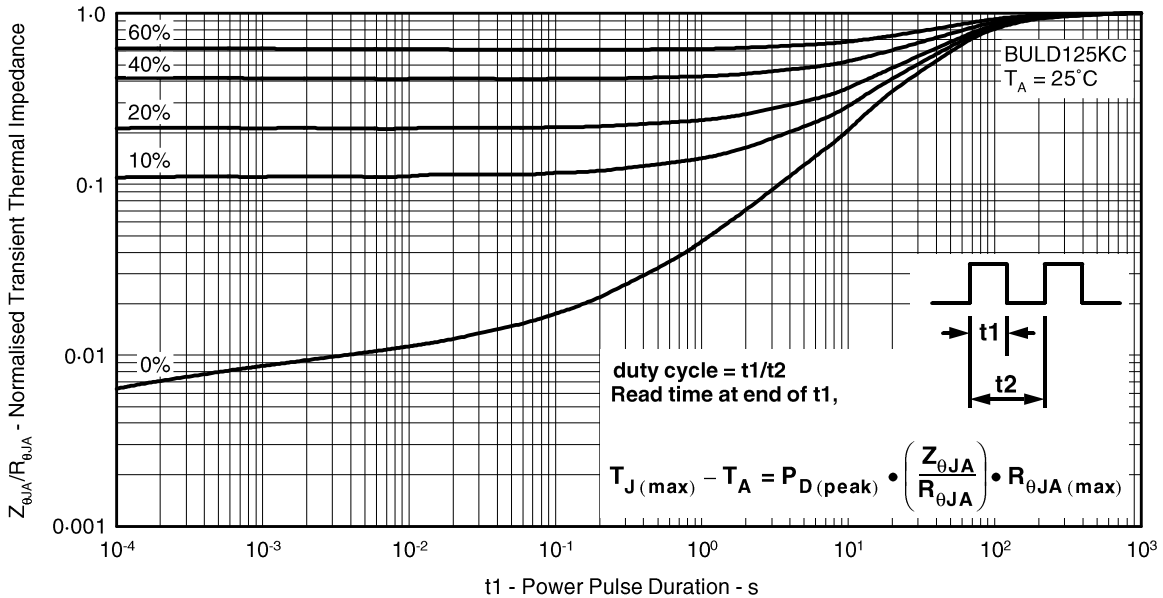


Figure 6.



BULD125KC
NPN SILICON TRANSISTOR WITH INTEGRATED DIODE

THERMAL INFORMATION

MAXIMUM POWER DISSIPATION JUNCTION TO CASE
vs
POWER PULSE DURATION

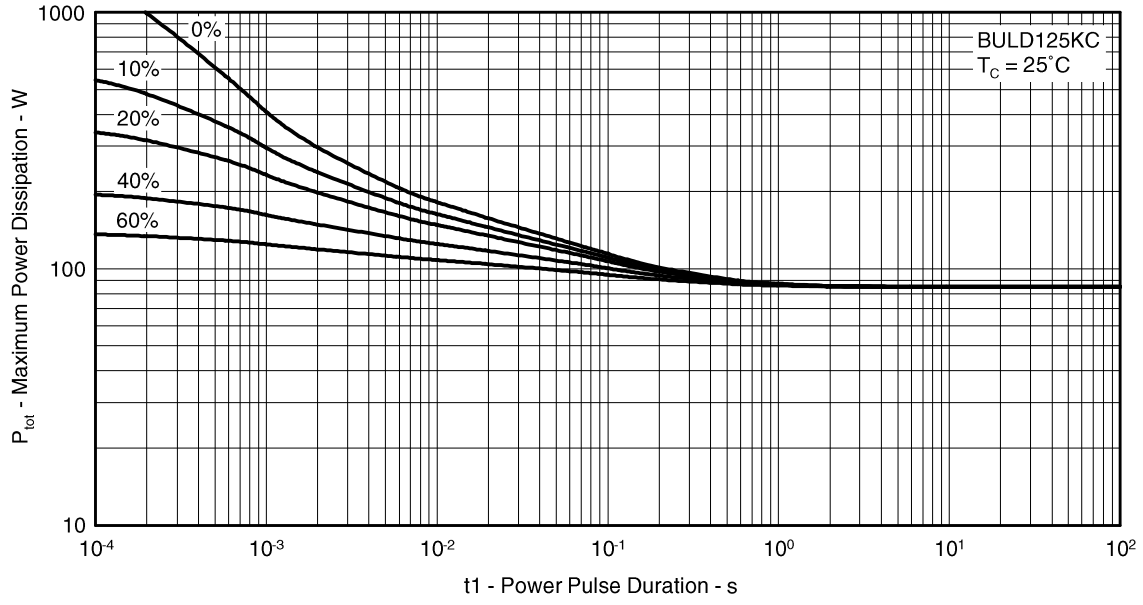


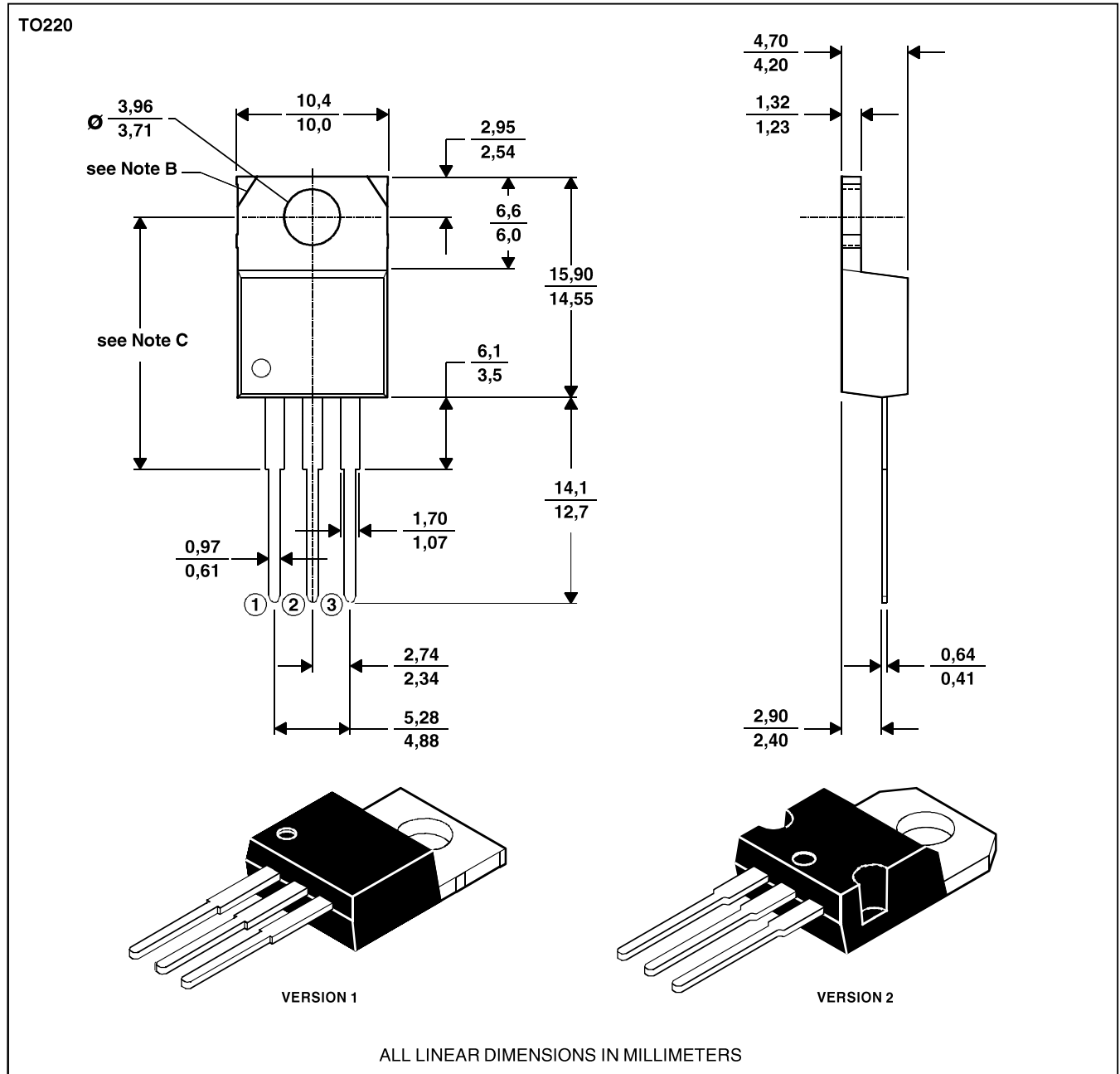
Figure 9.

MECHANICAL DATA

TO-220

3-pin plastic flange-mount package

This single-in-line package consists of a circuit mounted on a lead frame and encapsulated within a plastic compound. The compound will withstand soldering temperature with no deformation, and circuit performance characteristics will remain stable when operated in high humidity conditions. Leads require no additional cleaning or processing when used in soldered assembly.



- NOTES: A. The centre pin is in electrical contact with the mounting tab.
 B. Mounting tab corner profile according to package version.
 C. Typical fixing hole centre stand off height according to package version.
 Version 1, 18.0 mm. Version 2, 17.6 mm.