



THE DATASHEET OF BUV98AV

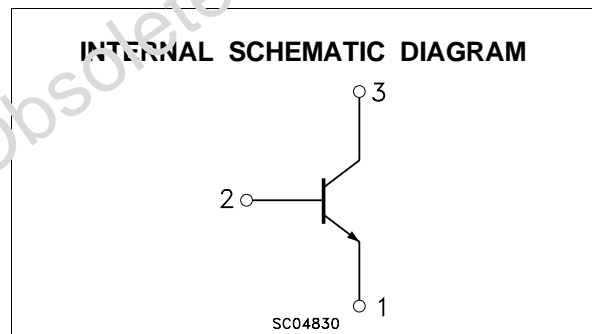
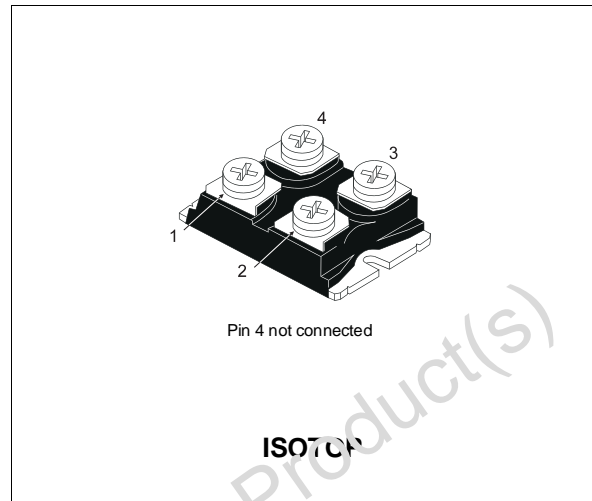


NPN TRANSISTOR POWER MODULE

- HIGH CURRENT POWER BIPOLAR MODULE
- VERY LOW R_{th} JUNCTION CASE
- SPECIFIED ACCIDENTAL OVERLOAD AREAS
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING
- LOW INTERNAL PARASITIC INDUCTANCE

INDUSTRIAL APPLICATIONS

- MOTOR CONTROL
- SMPS & UPS
- WELDING EQUIPMENT



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|----------------|---|------------|------|
| V_{CEV} | Collector-Emitter Voltage ($V_{BE} = -5$ V) | 1000 | V |
| $V_{CE0(sus)}$ | Collector-Emitter Voltage ($I_B = 0$) | 450 | V |
| V_{EB0} | Emitter-Base Voltage ($I_C = 0$) | 7 | V |
| I_C | Collector Current | 30 | A |
| I_{CM} | Collector Peak Current ($t_p < 10$ ms) | 60 | A |
| I_B | Base Current | 8 | A |
| I_{BM} | Base Peak Current ($t_p < 10$ ms) | 16 | A |
| P_{tot} | Total Dissipation at $T_c = 25$ °C | 150 | W |
| V_{isol} | Insulation Withstand Voltage (RMS) from All Four Terminals to External Heatsink | 2500 | V |
| T_{stg} | Storage Temperature | -55 to 150 | °C |
| T_j | Max. Operating Junction Temperature | 150 | °C |

BUV98AV

THERMAL DATA

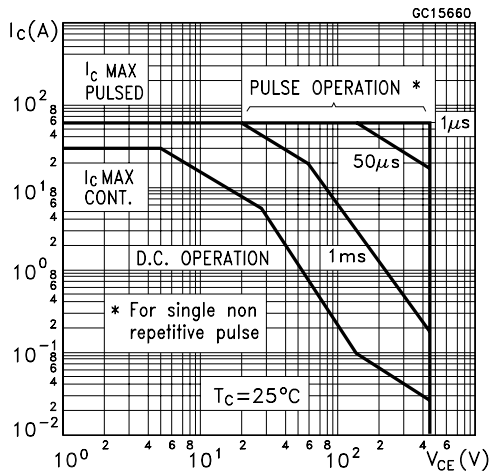
| | | | | |
|----------------|---|-----|------|---------------|
| $R_{thj-case}$ | Thermal Resistance Junction-case | Max | 0.83 | $^{\circ}C/W$ |
| R_{thc-h} | Thermal Resistance Case-heatsink With Conductive Grease Applied | Max | 0.05 | $^{\circ}C/W$ |

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

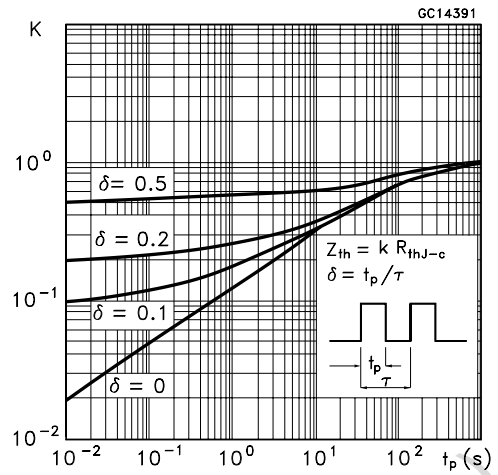
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-------------------|--|---|------|------|----------|--------------------|
| I_{CER} | Collector Cut-off Current ($R_{BE} = 5 \Omega$) | $V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV} \quad T_j = 100^{\circ}C$ | | | 1 8 | mA mA |
| I_{CEV} | Collector Cut-off Current ($V_{BE} = -5V$) | $V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV} \quad T_j = 100^{\circ}C$ | | | 0.4 4 | mA mA |
| I_{EBO} | Emitter Cut-off Current ($I_C = 0$) | $V_{EB} = 5 V$ | | | 2 | mA |
| $V_{CEO(sus)}^*$ | Collector-Emitter Sustaining Voltage ($I_B = 0$) | $I_C = 0.2 A \quad L = 25 mH$ $V_{clamp} = 450 V$ | 450 | | | V |
| h_{FE}^* | DC Current Gain | $I_C = 24 A \quad V_{CE} = 5 V$ | | 9 | | |
| $V_{CE(sat)}^*$ | Collector-Emitter Saturation Voltage | $I_C = 16 A \quad I_B = 3.2 A$ $I_C = 24 A \quad I_B = 5 A$ | | | 1.5 5 | V V |
| $V_{BE(sat)}^*$ | Base-Emitter Saturation Voltage | $I_C = 16 A \quad I_B = 3.2 A$ | | | 1.6 | V |
| di_C/dt | Rate of Rise of On-state Collector | $V_{CC} = 300 V \quad R_C = 0 \quad t_p = 3 \mu s$ $I_{B1} = 6 A \quad T_j = 100^{\circ}C$ | 100 | | | A/ μs |
| $V_{CE(3 \mu s)}$ | Collector-Emitter Dynamic Voltage | $V_{CC} = 300 V \quad R_C = 15 \Omega$ $I_{B1} = 6 A \quad T_j = 100^{\circ}C$ | | | 8 | V |
| $V_{CE(5 \mu s)}$ | Collector-Emitter Dynamic Voltage | $V_{CC} = 300 V \quad R_C = 15 \Omega$ $I_{B1} = 6 A \quad T_j = 100^{\circ}C$ | | | 4 | V |
| t_s t_f | Storage Time Fall Time | $I_C = 16 A \quad V_{CC} = 50 V$ $V_{BB} = -5 V \quad L_B = 1.5 \mu H$ $V_{clamp} = 300 V \quad I_{B1} = 3.2 A$ $L = 750 \mu H \quad T_j = 100^{\circ}C$ | | | 5 0.4 | μs μs |
| V_{CEW} | Maximum Collector Emitter Voltage Without Snubber | $I_{C\text{Woff}} = 30 A \quad I_{B1} = 6 A$ $V_{BB} = -5 V \quad V_{CC} = 50 V$ $L = 750 \mu H \quad L_B = 15 \mu H$ $T_j = 125^{\circ}C$ | 350 | | | V |

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

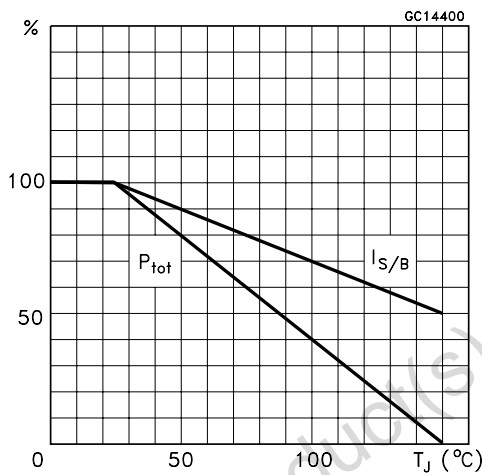
Safe Operating Area



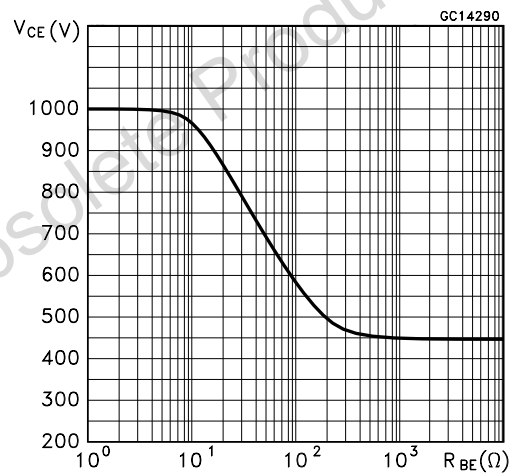
Thermal Impedance



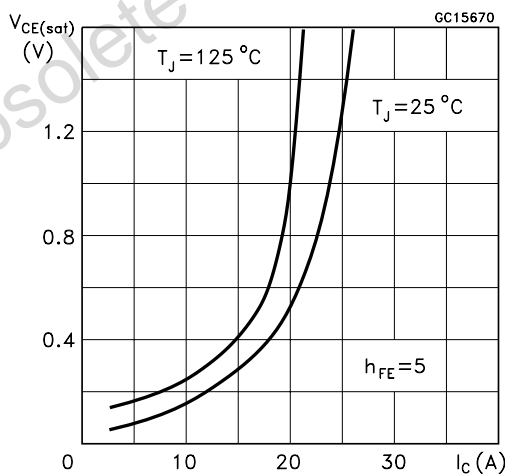
Derating Curve



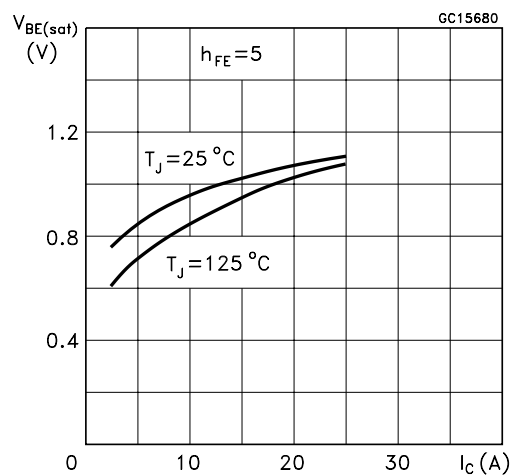
Collector-Emitter Voltage Versus Base-Emitter Resistance



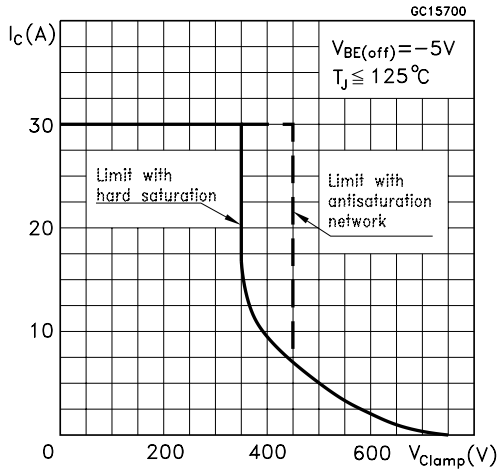
Collector- Emitter Saturation Voltage



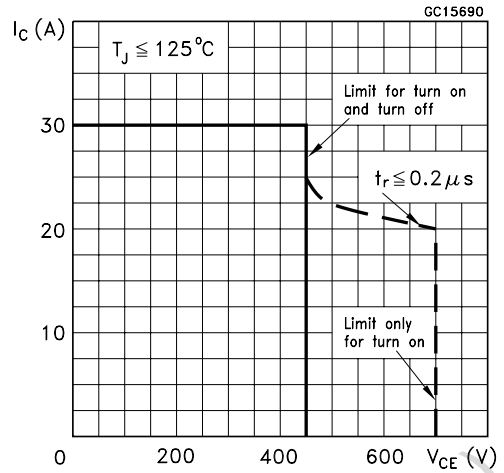
Base-Emitter Saturation Voltage



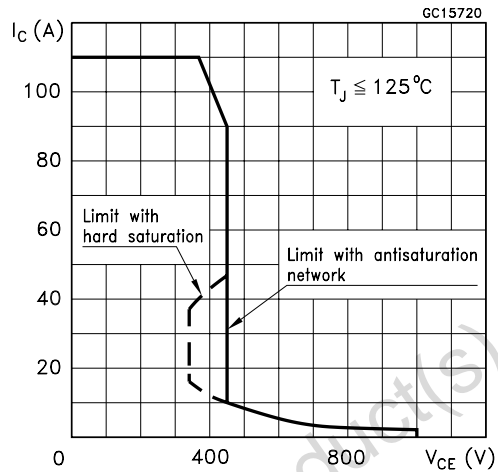
Reverse Biased SOA



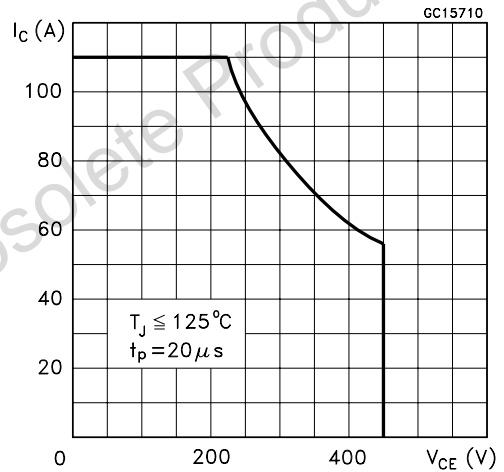
Forward Biased SOA



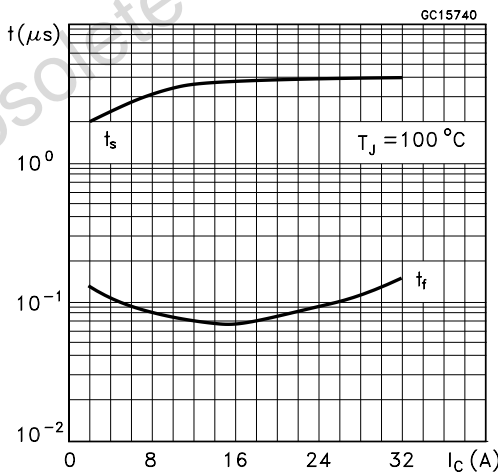
Reverse Biased AOA



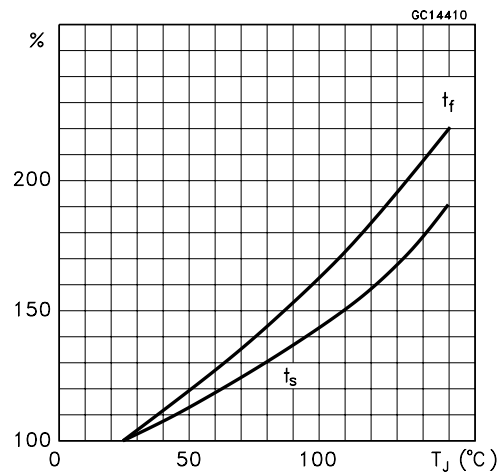
Forward Biased AOA



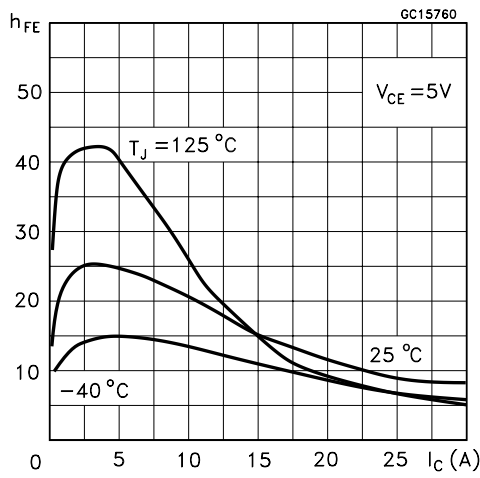
Switching Times Inductive Load



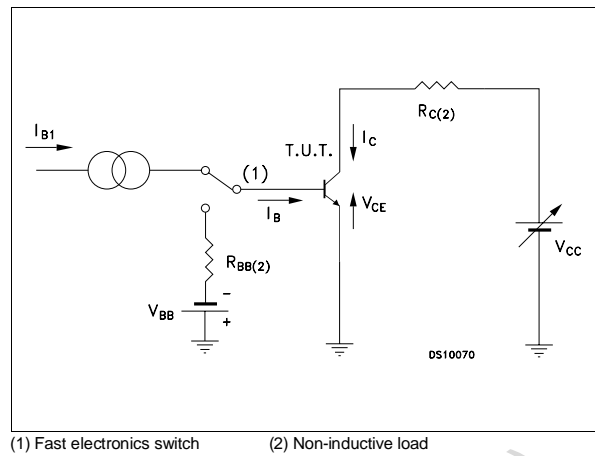
Switching Times Inductive Load Versus Temperature



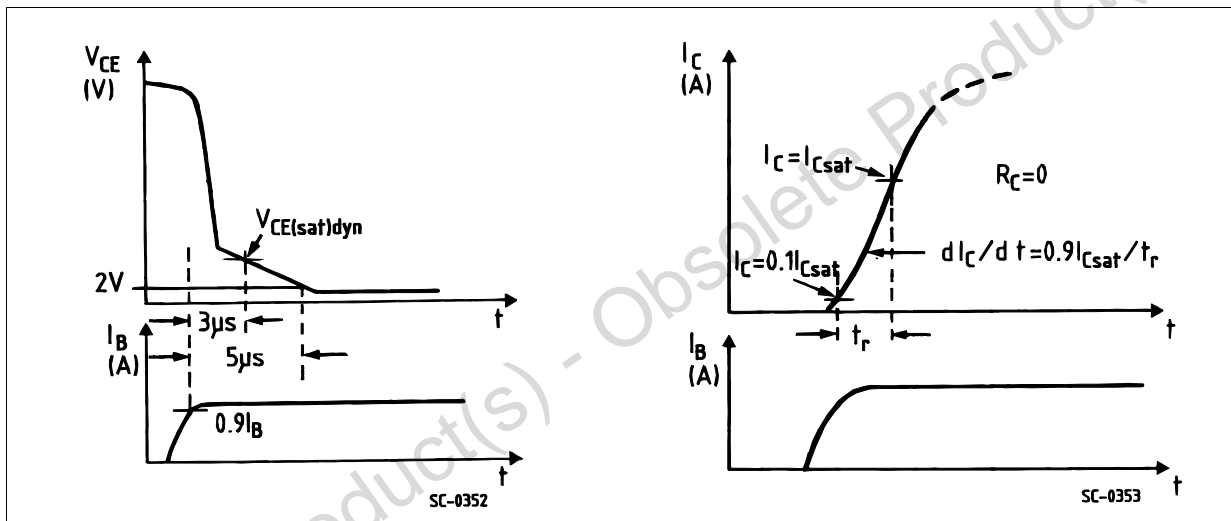
Dc Current Gain



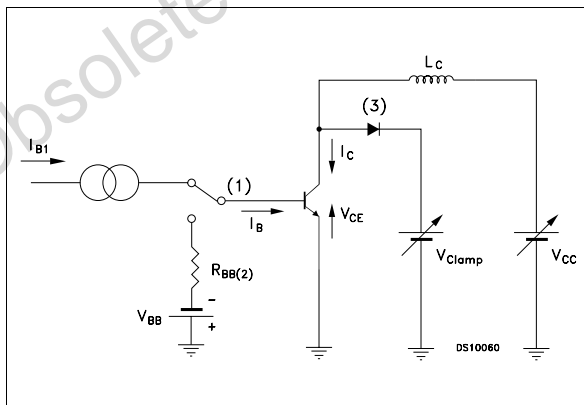
Turn-on Switching Test Circuit



Turn-on Switching Waveforms

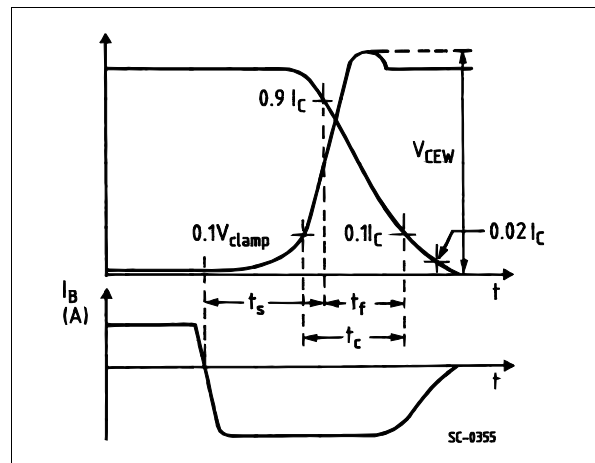


Turn-off Switching Test Circuit



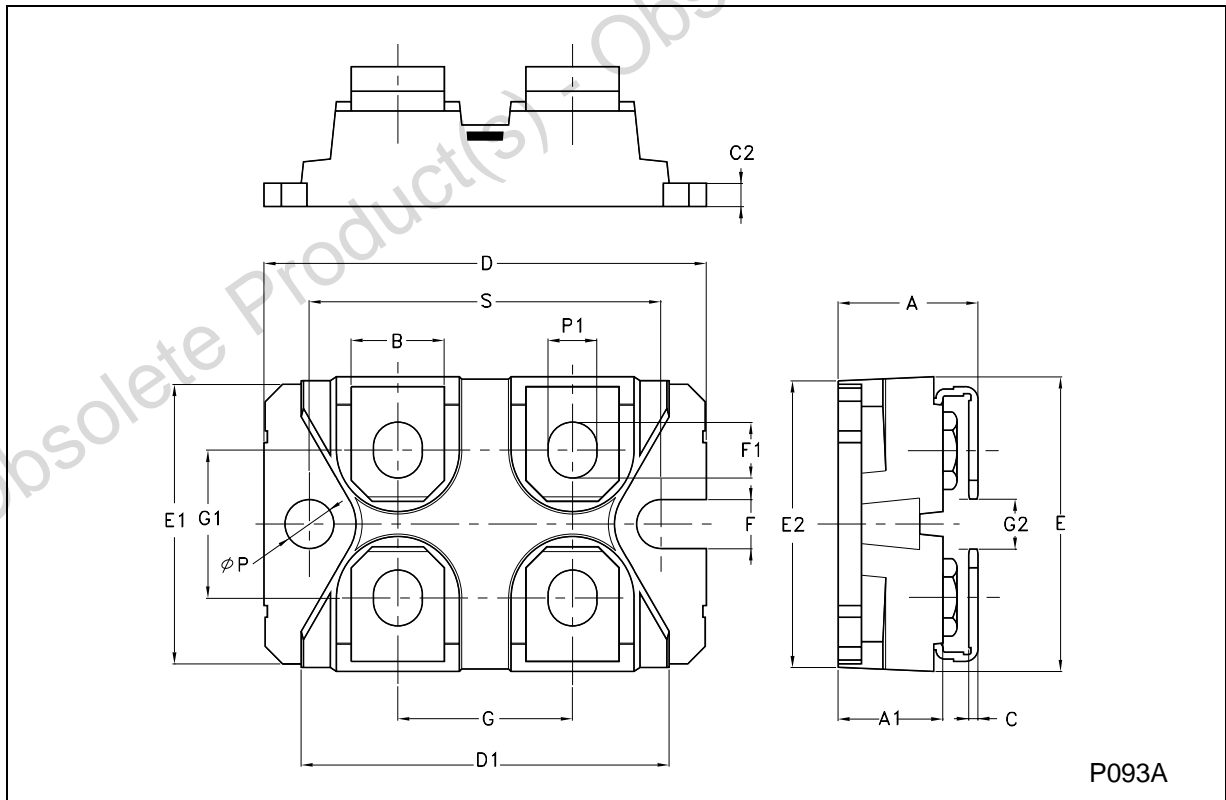
(1) Fast electronic switch (2) Non-inductive load (3) Fast recovery rectifier

Turn-off Switching Waveforms



ISOTOP MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 11.8 | | 12.2 | 0.465 | | 0.480 |
| A1 | 8.9 | | 9.1 | 0.350 | | 0.358 |
| B | 7.8 | | 8.2 | 0.307 | | 0.322 |
| C | 0.75 | | 0.85 | 0.029 | | 0.033 |
| C2 | 1.95 | | 2.05 | 0.076 | | 0.080 |
| D | 37.8 | | 38.2 | 1.488 | | 1.503 |
| D1 | 31.5 | | 31.7 | 1.240 | | 1.248 |
| E | 25.15 | | 25.5 | 0.990 | | 1.003 |
| E1 | 23.85 | | 24.15 | 0.938 | | 0.950 |
| E2 | | 24.8 | | | 0.976 | |
| G | 14.9 | | 15.1 | 0.586 | | 0.594 |
| G1 | 12.6 | | 12.8 | 0.496 | | 0.503 |
| G2 | 3.5 | | 4.3 | 0.137 | | 1.169 |
| F | 4.1 | | 4.3 | 0.161 | | 0.169 |
| F1 | 4.6 | | 5 | 0.181 | | 0.196 |
| P | 4 | | 4.3 | 0.157 | | 0.169 |
| P1 | 4 | | 4.4 | 0.157 | | 0.173 |
| S | 30.1 | | 30.3 | 1.185 | | 1.193 |



Obsolete Product(s) - Obsolete Product(s)

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2003 STMicroelectronics – Printed in Italy – All Rights Reserved



STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View BUV98AV](#) on WIN SOURCE
-  [STMicroelectronics](#) Information

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management