

DATA SHEET

TDA2545A Quasi-split-sound circuit

Product specification
File under Integrated Circuits, IC02

February 1985

Quasi-split-sound circuit

TDA2545A

GENERAL DESCRIPTION

The TDA2545A is a monolithic integrated circuit for quasi-split-sound processing in television receivers.

Features

- 3-stage gain controlled i.f. amplifier
- A.G.C. circuit
- Reference amplifier and limiter amplifier for vision carrier (V.C.) processing
- Linear multiplier for quadrature demodulation

QUICK REFERENCE DATA

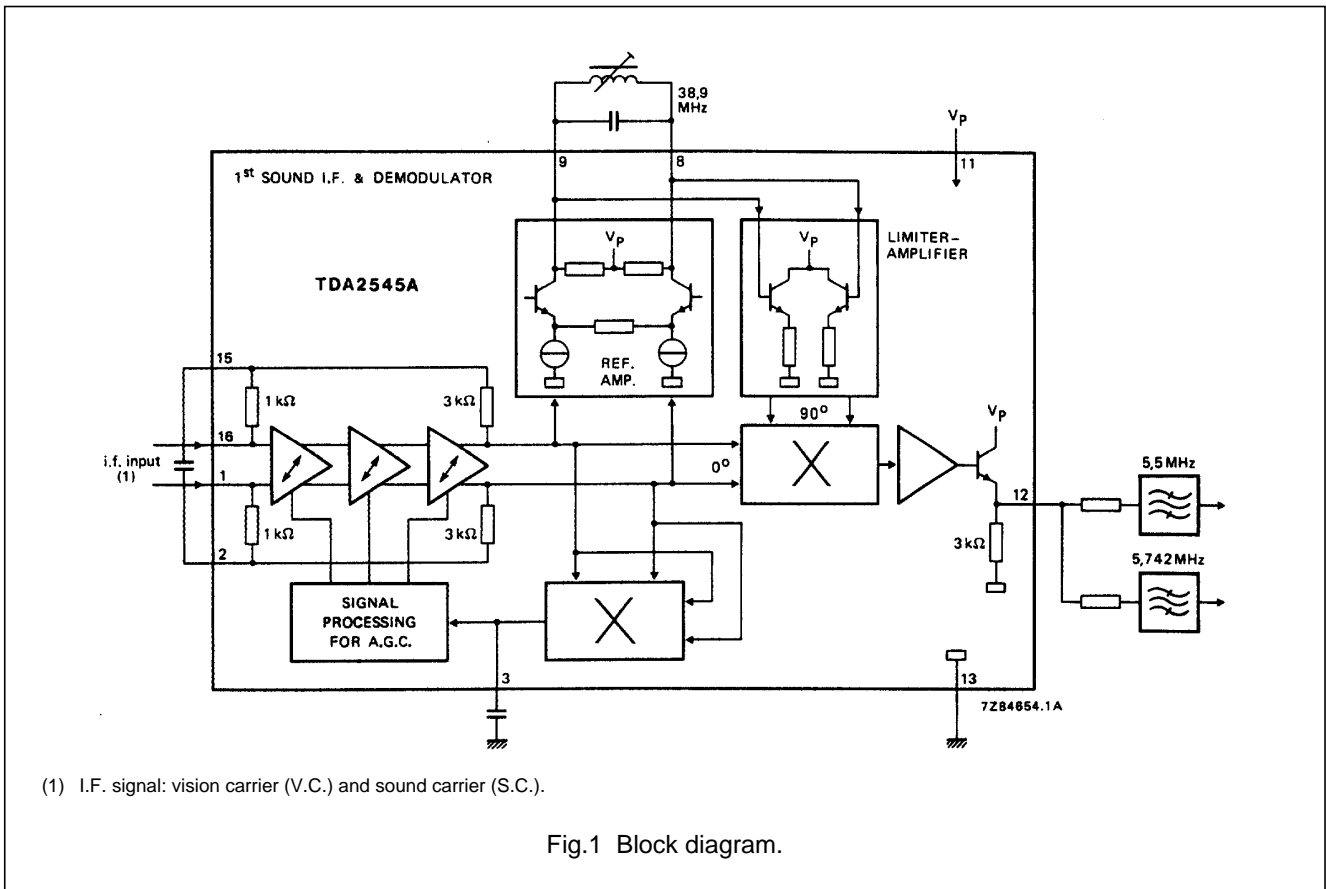
| | | | | |
|--|-------------------|------|-----|---------|
| Supply voltage (pin 11) | $V_P = V_{11-13}$ | typ. | 12 | V |
| Supply current (pin 11) | $I_P = I_{11}$ | typ. | 45 | mA |
| Minimum i.f. vision carrier input voltage (r.m.s. value) | $V_{VC1-16(rms)}$ | typ. | 150 | μ V |
| Output voltage; 5,5 MHz (r.m.s. value) | $V_{12-13(rms)}$ | typ. | 100 | mV |
| Output voltage; 5,742 MHz (r.m.s. value) | $V_{12-13(rms)}$ | typ. | 45 | mV |
| I.F. control range | ΔG_V | typ. | 64 | dB |
| Signal-to-weighted-noise (rel. to 1 kHz; 30 kHz deviation) | | | | |
| at 5,5 MHz | S + W/W | typ. | 58 | dB |
| at 5,742 MHz | S + W/W | typ. | 56 | dB |

PACKAGE OUTLINES

16-lead DIL; plastic (SOT38); SOT38-1; 1996 November 19.

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RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

| | | | | |
|-------------------------------------|-------------------|-------------|------|---|
| Supply voltage (pin 11) | $V_P = V_{11-13}$ | max. | 13,2 | V |
| Storage temperature range | T_{stg} | -25 to +150 | °C | |
| Operating ambient temperature range | T_{amb} | 0 to +70 | °C | |

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CHARACTERISTICS

$V_P = V_{11-13} = 12\text{ V}$; $T_{amb} = 25\text{ °C}$; measured at $f_{VC} = 38,9\text{ MHz}$, $f_{SC1} = 33,4\text{ MHz}$, $f_{SC2} = 33,158\text{ MHz}$:

Vision carrier (V.C.) modulated with different video signals (see below); modulation depth 100% (proportional to 10% residual carrier).

Vision carrier amplitude (r.m.s. value) is $V_{VC} = 10\text{ mV}$.

Vision-to-sound carrier ratios are $VC/SC1 = 13\text{ dB}$ and $VC/SC2 = 20\text{ dB}$.

Sound carriers (SC1, SC2) modulated with $f = 1\text{ kHz}$ and deviation $\Delta f = \pm 30\text{ kHz}$.

For measuring circuit see Fig.2; unless otherwise specified.

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|--|-------------------|------|------|-------|---------------|
| Supply (pin 11) | | | | | |
| Supply voltage | $V_P = V_{11-13}$ | 10,8 | 12 | 13,2 | V |
| Supply current | $I_P = I_{11}$ | 33 | 45 | 55 | mA |
| I.F. amplifier | | | | | |
| Input voltage for start of gain control (intercarrier signals -3 dB) | $V_{VC1-16(rms)}$ | – | 150 | 200 | μV |
| Input voltage for end of gain control (intercarrier signals $+1\text{ dB}$) | $V_{VC1-16(rms)}$ | 100 | 250 | – | mV |
| I.F. gain control range | ΔG_V | 60 | 64 | – | dB |
| Control voltage range (see Fig.3) | V_{3-13} | 4 | – | V_P | V |
| Input resistance | R_{1-16} | – | 2,5 | – | k Ω |
| Input capacitance | C_{1-16} | – | 1,5 | – | pF |
| Inter-carrier generation | | | | | |
| Output voltage; 5,5 MHz (r.m.s. value) | $V_{12-13(rms)}$ | 60 | 100 | 140 | mV |
| Output voltage; 5,742 MHz (r.m.s. value) | $V_{12-13(rms)}$ | 27 | 45 | 63 | mV |
| D.C. output voltage | V_{12-13} | – | 5,9 | – | V |
| Allowable d.c. load resistance at the output | R_{12-13} | 7 | – | – | k Ω |
| Allowable output current | $-I_{12}$ | – | – | 1 | mA |
| Inter-carrier signal-to-noise (see note 1) (measured behind the FM demodulators) weighted according to CCIR 468-2, quasi-peak | | | | | |
| a. 2T/20T pulses with white bars (see also Fig.4) | | | | | |
| at 5,5 MHz | S+W/W | 53 | 58 | – | dB |
| at 5,742 MHz | S+W/W | 51 | 56 | – | dB |
| b. 6 kHz sinewave | | | | | |
| at 5,5 MHz | S+W/W | 50 | 53 | – | dB |
| at 5,742 MHz | S+W/W | 50 | 53 | – | dB |
| c. black level (sync pulses only) | | | | | |
| at 5,5 MHz | S+W/W | 60 | 65 | – | dB |
| at 5,742 MHz | S+W/W | 58 | 63 | – | dB |

Note

- Incidental phase on the vision carrier, caused by TV transmitter, has to be less than 0,5 degrees for black to white transient (equivalent to S+W/W = 56 dB for 6 kHz sinewave).

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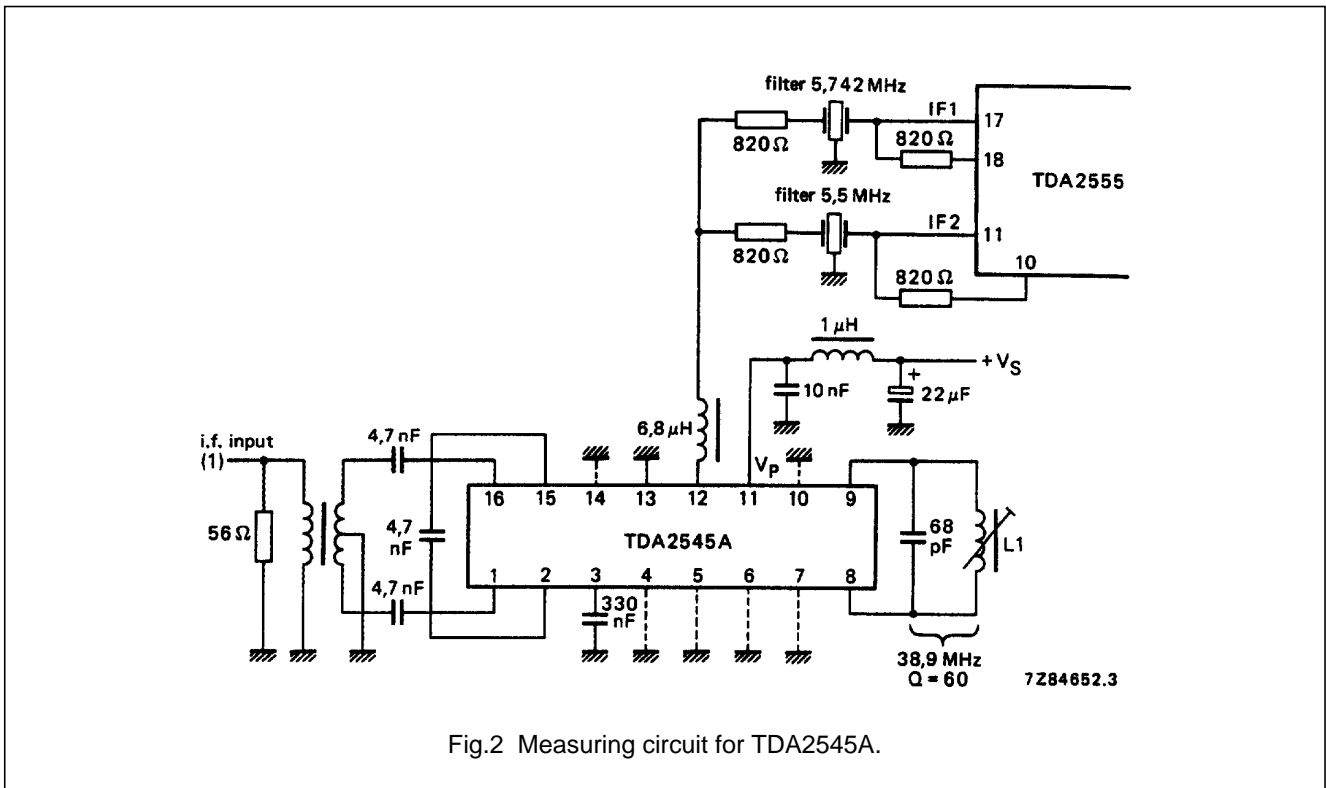


Fig.2 Measuring circuit for TDA2545A.

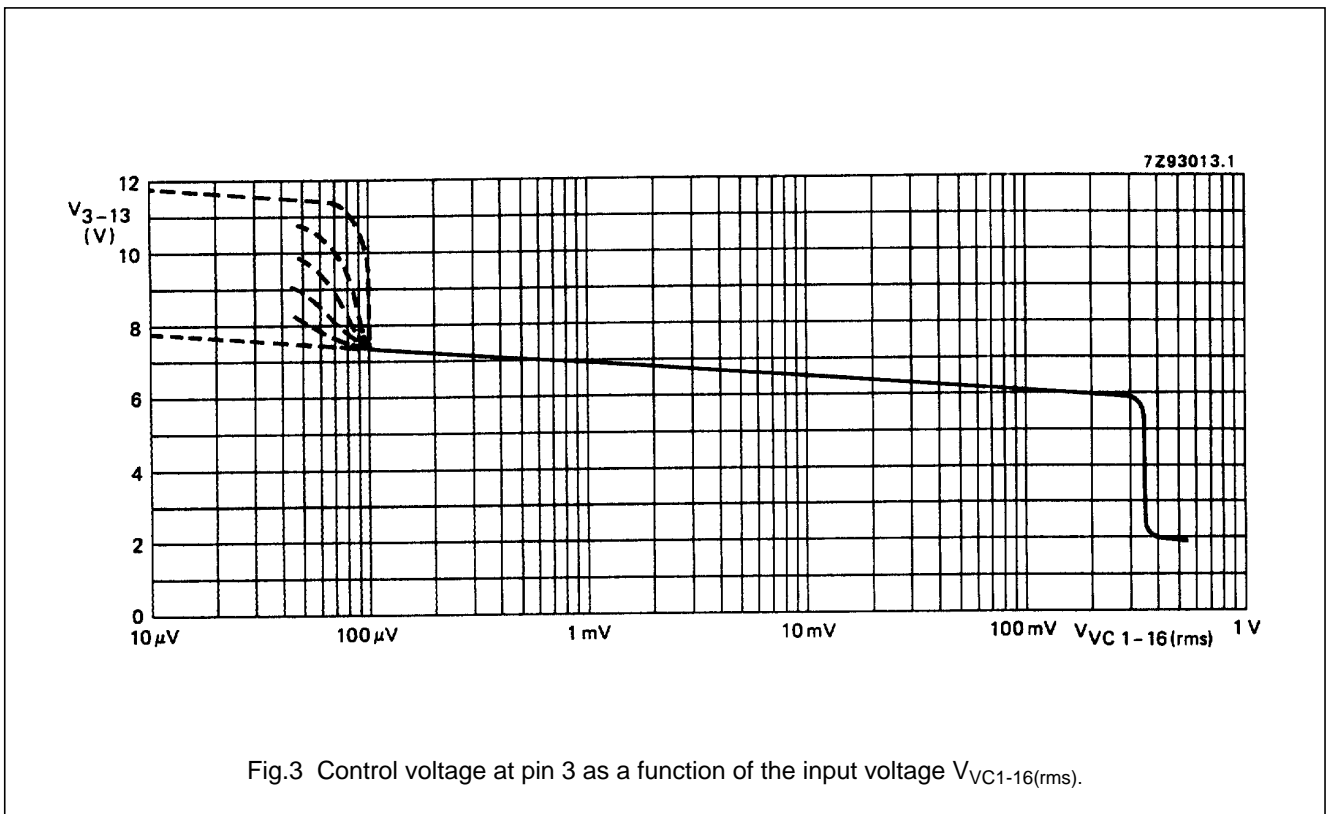


Fig.3 Control voltage at pin 3 as a function of the input voltage $V_{VC1-16(rms)}$.

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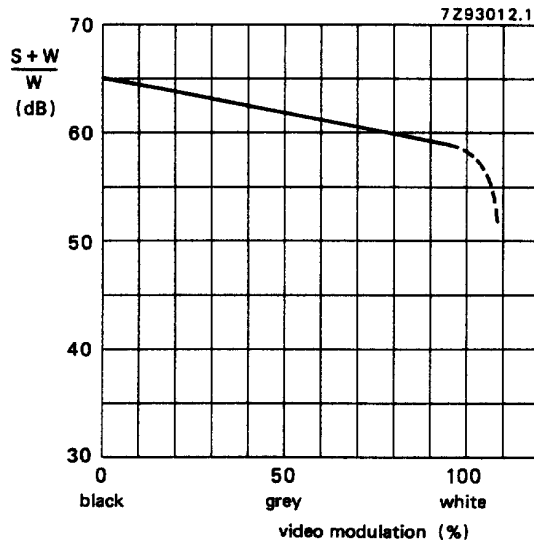


Fig.4 Signal-to-weighted-noise ratio depending on video modulation.

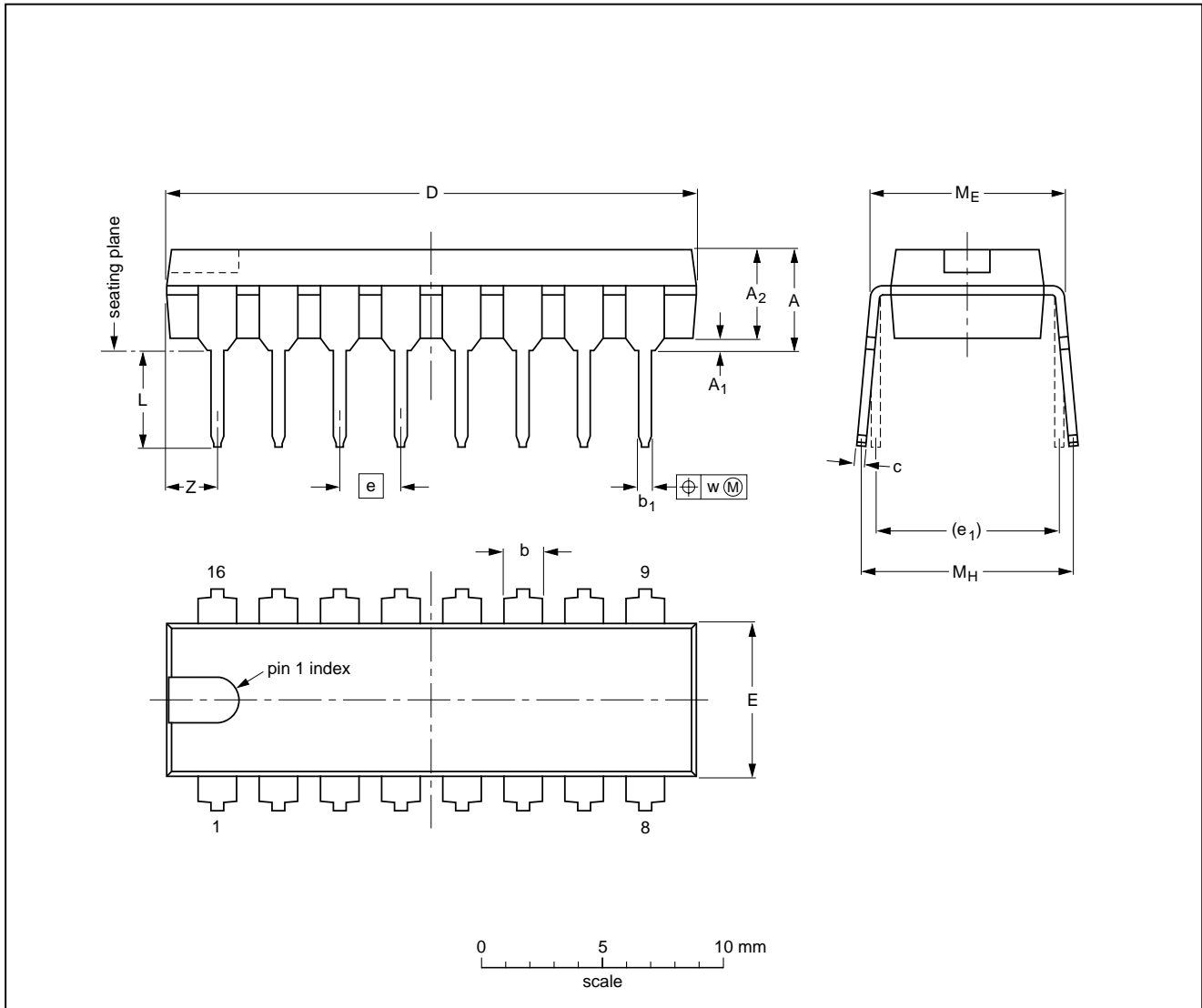
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PACKAGE OUTLINES

DIP16: plastic dual in-line package; 16 leads (300 mil); long body

SOT38-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

| UNIT | A max. | A ₁ min. | A ₂ max. | b | b ₁ | c | D ⁽¹⁾ | E ⁽¹⁾ | e | e ₁ | L | M _E | M _H | w | Z ⁽¹⁾ max. |
|--------|--------|---------------------|---------------------|----------------|----------------|----------------|------------------|------------------|------|----------------|--------------|----------------|----------------|-------|-----------------------|
| mm | 4.7 | 0.51 | 3.7 | 1.40 1.14 | 0.53 0.38 | 0.32 0.23 | 21.8 21.4 | 6.48 6.20 | 2.54 | 7.62 | 3.9 3.4 | 8.25 7.80 | 9.5 8.3 | 0.254 | 2.2 |
| inches | 0.19 | 0.020 | 0.15 | 0.055 0.045 | 0.021 0.015 | 0.013 0.009 | 0.86 0.84 | 0.26 0.24 | 0.10 | 0.30 | 0.15 0.13 | 0.32 0.31 | 0.37 0.33 | 0.01 | 0.087 |

Note

1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|----------|------|--|---------------------|----------------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT38-1 | 050G09 | MO-001AE | | | | 92-10-02 95-01-19 |

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SOLDERING

Introduction

There is no soldering method that is ideal for all IC packages. Wave soldering is often preferred when through-hole and surface mounted components are mixed on one printed-circuit board. However, wave soldering is not always suitable for surface mounted ICs, or for printed-circuits with high population densities. In these situations reflow soldering is often used.

This text gives a very brief insight to a complex technology. A more in-depth account of soldering ICs can be found in our "IC Package Databook" (order code 9398 652 90011).

Soldering by dipping or by wave

The maximum permissible temperature of the solder is 260 °C; solder at this temperature must not be in contact with the joint for more than 5 seconds. The total contact time of successive solder waves must not exceed 5 seconds.

The device may be mounted up to the seating plane, but the temperature of the plastic body must not exceed the specified maximum storage temperature ($T_{stg\ max}$). If the printed-circuit board has been pre-heated, forced cooling may be necessary immediately after soldering to keep the temperature within the permissible limit.

Repairing soldered joints

Apply a low voltage soldering iron (less than 24 V) to the lead(s) of the package, below the seating plane or not more than 2 mm above it. If the temperature of the soldering iron bit is less than 300 °C it may remain in contact for up to 10 seconds. If the bit temperature is between 300 and 400 °C, contact may be up to 5 seconds.

DEFINITIONS

| Data sheet status | |
|---|---|
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| Limiting values | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

LIFE SUPPORT APPLICATIONS

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