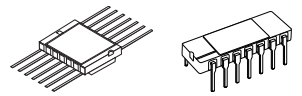
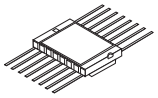
# 54ACxxxx, 54ACTxxxx

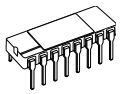
Data brief

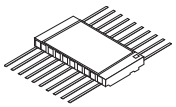
## Rad-hard advanced high-speed 5 V CMOS logic series

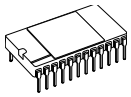

Flat-14

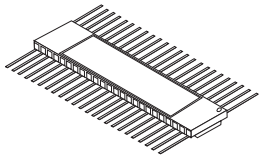

DIL-14


Flat-16


DIL-16


Flat-20


DIL-20


Flat-48

For some of references (see ordering information table) the upper metallic lid is electrically connected to the ground pin

| Product status link |
| --- |
| 54ACxxxx, 54ACTxxxx |

## Features

- 7 V Absolute maximum ratings
- 2 V to 6 V operating voltage for CMOS 54ACxxx series
- 4.5 V to 5.5 V operating voltage for TTL 54ACTxxx series
- Hermetic packages
- High radiation hardness:
  - TID : 300 krad(Si) RHA
  - SEL immune up to 110 MeV.cm²/mg
  - SEU and SET characterized
- -55 °C to +125 °C temperature range
- QML-V qualified

## Description

The 54ACxxxx and 54ACTxxxx series are composed of high-speed CMOS functions, specifically designed to meet the radiation requirements of the aerospace industry. They include a large set of gates, flip-flops, multiplexers, counters, bus interfaces, and several other functions.

All type of the series features a high radiation hardness, in total ionizing dose (TID), in single event latch-up (SEL) and in single event upset (SEU). Housed in ceramic hermetic packages and QML-V qualified, they are ideally suited for use in the most demanding space conditions, as well as in other harsh environmental conditions.

The complete specification of each type is available from the DLA web site https://landandmaritimeapps.dla.mil/programs/smcr/default.aspx2 or directly using the hyperlinks provided in this document.

A dedicated technical note TN1181 provides additional information on the Engineering model quality level.

# 1 Device summary

All parts have grounded lid versions. Temperature range: -55 to +125 °C.

**Table 1. AC Logic series - Device summary**

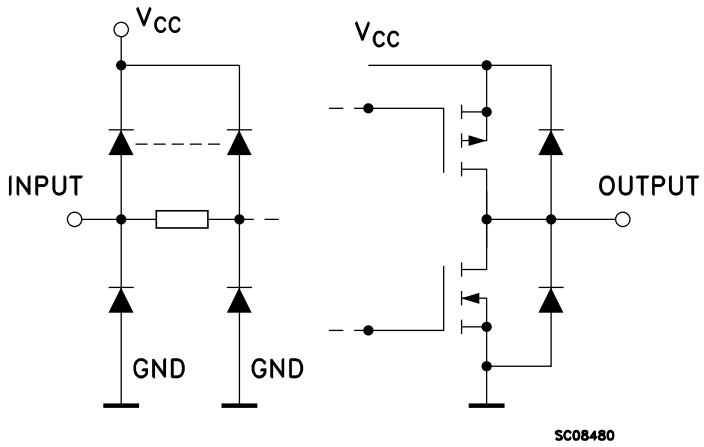
| Part number | Description | TID RHA [krad(Si)] | SEL/SET/SEU threshold (1) [MeV.cm2/mg] | QML SMD # | Package (2) |
|---|---|---|---|---|---|
| **AC Logic** | | | | | |
| 54AC00 | Quad 2-input NAND gate | 300 | 125/17/33 (3) | 5962F04213 | Flat-14, DIL-14 |
| 54AC02 | Quad 2-input NOR gate | | 125/17/33 (3) | 5962F87612 | Flat-14, DIL-14 |
| 54AC04 | Hex inverter | | 125/17/33 (3) | 5962F87609 | Flat-14, DIL-14 |
| 54AC08 | Quad 2-input AND gate | | 125/17/33 (3) | 5962F87615 | Flat-14, DIL-14 |
| 54AC10 | Triple 3-input NAND gate | | 125/17/33 (3) | 5962F87610 | Flat-14 |
| 54AC11 | Triple 3-input AND gate | | 125/17/33 (3) | 5962F87611 | Flat-14 |
| 54AC14 | Hex Schmitt inverter | | 125/17/33 (3) | 5962F87624 | Flat-14, DIL-14 |
| 54AC14A | Hex Schmitt inverter low power | | 125/17/33 (3) | 5962F87624 | Flat-14 |
| 54AC32 | Quad 2-input OR gate | | 125/17/33 (3) | 5962F87614 | Flat-14, DIL-14 |
| 54AC74 | Dual D-type flip-flop with preset and clear | | 125/8/8 | 5962F88520 | Flat-14, DIL-14 |
| 54AC86 | Quad exclusive OR | | 125/17/33 (3) | 5962F89550 | Flat-14 |
| 54AC138 | 3-to-8 line decoder inverter | | 125/17/33 (3) | 5962F87622 | Flat-16, DIL-16 |
| 54AC139 | Dual 2-to-4 line decoder/demultiplexer | | 125/17/33 (3) | 5962F87623 | Flat-16 |
| 54AC151 | 8-channel multiplexer | | 125/17/33 (3) | 5962F87691 | Flat-16 |
| 54AC157 | Quad 2-channel multiplexer | | 125/17/33 (3) | 5962F89539 | Flat-16 |
| 54AC161 | Synchronous binary counter with async. clear | | 125/8/8 | 5962F89561 | Flat-16 |
| 54AC174 | Hex D-type flip-flop with clear | | 125/8/8 | 5962F87626 | Flat-16 |
| 54AC191 | 4 Bit synchronous binary up/down counter | | 125/8/8 | 5962F89749 | Flat-16 |
| 54AC240 | Octal bus buffer 3-state inverter | | 125/33/33 (4) | 5962F87550 | Flat-20 |
| 54AC244 | Octal bus buffer 3-state with OE by nimble | | 125/33/33 (4) | 5962F87552 | Flat-20 |
| 54AC245 | Octal bus transceiver 3-state with OE and T/R | | 125/33/33 (4) | 5962F87758 | Flat-20 |
| 54AC273 | Octal D-type flip-flop with clear | | 125/8/8 | 5962F87756 | Flat-20 |
| 54AC373 | Octal D-type latch 3-state | | 125/17/8 (3) | 5962F87555 | Flat-20 |
| 54AC374 | Octal D-type flip-flop 3-state | | 125/17/8 (3) | 5962F87694 | Flat-20 |
| 54AC541 | Octal bus buffer 3-state | | 125/33/33 (4) | 5962F88706 | Flat-20 |
| 54AC574 | Octal D-type flip-flop 3-state | | 125/33/33 (4) | 5962F96773 | Flat-20 |
| 54AC2525 | 1-to-8 skew clock driver | | 125/17/33 (3) | 5962F92174 | Flat-14 |
| 54AC16244 | 16-bit buffer 3-state with OE by nimble | | 125/33/33 (4) | 5962F04210 | Flat-48 |
| 54AC16245 | 16-bit transceiver 3-state with OE and DIR by byte | | 125/33/33 (4) | 5962F04211 | Flat-48 |
| 54AC16373 | 16-bit D-type latch 3-state | | 125/17/8 (3) | 5962F04212 | Flat-48 |
| 54AC16374 | 16-bit D-type flip-flop 3-state | | 125/17/8 (3) | 5962F04213 | Flat-48 |
| 54AC164245 | 16-bit 3 to 5 V level shifter transceiver 3-state | 100 | 120/21/- | 5962R98580 | Flat-48 |

| Part number | Description | TID RHA [krad(Si)] | SEL/SET/SEU threshold (1) [MeV.cm2/mg] | QML SMD # | Package (2) |
|---|---|---|---|---|---|
| **ACT Logic** | | | | | |
| 54ACT00 | Quad 2-input NAND gate | 300 | 125/17/33 (3) | 5962F87699 | Flat-14 |
| 54ACT02 | Quad 2-input NOR gate | | 125/17/33 (3) | 5962F89791 | Flat-14 |
| 54ACT04 | Hex inverter | | 125/1733 (3) | 5962F89734 | Flat-14 |
| 54ACT08 | Quad 2-input AND gate | | 125/17/33 (3) | 5962F89547 | Flat-14, DIL-14 |
| 54ACT10 | Triple 3-input NAND gate | | 125/17/33 (3) | 5962F92182 | Flat-14 |
| 54ACT11 | Triple 3-input AND gate | | 125/17/33 (3) | 5962F90772 | Flat-14 |
| 54ACT14 | Hex Schmitt inverter | | 125/17/33 (3) | 5962F96813 | Flat-14 |
| 54ACT32 | Quad 2-input OR gate | | 125/17/33 (3) | 5962F89736 | Flat-14 |
| 54ACT74 | Dual D-type flip-flop with preset & clear | | 125/8/8 | 5962F87525 | Flat-14 |
| 54ACT86 | Quad exclusive OR | | 125/17/33 (3) | 5962F90687 | Flat-14 |
| 54ACT138 | 3-to-8 line decoder inverter | | 125/17/33 (3) | 5962F87554 | Flat-16 |
| 54ACT139 | Dual 2-to-4 line decoder/demultiplexer | | 125/17/33 (3) | 5962F87553 | Flat-16 |
| 54ACT157 | Quad 2-channel multiplexer | | 125/17/33 (3) | 5962F89688 | Flat-16 |
| 54ACT161 | Synchronous binary counter with async. clear | | 125/8/8 | 5962F91722 | Flat-16 |
| 54ACT240 | Octal bus buffer 3-state inverter | | 125/33/33 (4) | 5962F87759 | Flat-20 |
| 54ACT244 | Octal bus buffer 3-state with OE by nimble | | 125/33/33 (4) | 5962F87760 | Flat-20 |
| 54ACT245 | Octal bus transceiver 3-state with OE and T/R | | 125/33/33 (4) | 5962F87663 | Flat-20 |
| 54ACT273 | Octal D-type flip-flop with clear | | 125/8/8 | 5962F01527 | Flat-20 |
| 54ACT373 | Octal D-type latch 3-state | | 125/17/8 (3) | 5962F87556 | Flat-20 |
| 54ACT374 | Octal D-type flip-flop 3-state | | 125/17/8 (3) | 5962F87631 | Flat-20 |
| 54ACT541 | Octal bus buffer 3-state | | 125/33/33 (4) | 5962F89795 | Flat-20 |
| 54ACT574 | Octal D-type flip-flop 3-state | | 125/17/33 (4) | 5962F89601 | Flat-20 |
| 54ACT16244 | 16-bit buffer 3-state with OE by nimble | | 125/33/33 (4) | 5962F92022 | Flat-48 |
| 54ACT16245 | 16-bit transceiver 3-state with OE and DIR by byte | | 125/33/33 (4) | 5962F92023 | Flat-48 |
| 54ACT16373 | 16-bit D-type latch 3-state | | 125/17/8 (3) | 5962F92024 | Flat-48 |
| 54ACT16374 | 16-bit D-type flip-flop 3-state | | 125/17/8 (3) | 5962F92025 | Flat-48 |

1. *See datasheet for details on the test conditions and Weibull parameters. The radiation report, available on request, provides the complete characterization.*
2. *Contact ST sales representative for availability of other DIL versions and for in die form versions.*
3. *At 3.0 Volt.*
4. *At 4.5 Volt, outputs activated.*

## 2 Input and output equivalent circuit diagram

**Figure 1. Input and output equivalent circuit diagram**




*Note: For the RHRAC164245 input equivalent circuit, there is no diode connected to VCC.*

# 3 Maximum ratings

**Table 2. Absolute maximum ratings (1) overview - AC and ACT series**

| Parameter | Description | Value | Unit |
|---|---|---|---|
| $V_{CC}$ (2) | Supply voltage range | -0.5 dc to +7.0 dc | V |
| $V_{IN}$ (3) | DC input voltage range | -0.5 dc to $V_{CC}$ + 0.5 | V |
| $V_{OUT}$ (3) | DC output voltage range | -0.5 dc to $V_{CC}$ + 0.5 | V |
| $I_{IK}$ | DC input clamp diode current | ±20 | mA |
| $I_{OK}$ (4) | DC output clamp diode current | ±20 | mA |
| $I_{OUT}$ | DC output current | Refer to SMD | mA |
| $T_{STG}$ | Storage temperature range | -65 to +150 | °C |
| $P_D$ (5) | Maximum power dissipation | 500 | mW |
| $T_L$ | Lead temperature (soldering, 10 seconds)<br>- Case Outline X (Flat with floating lid) (6)<br>- Case outline Y (Flat with grounded lid)<br>- Other case outlines | 260 Refer to SMD | °C |
| $T_J$ | Junction temperature | 175 | °C |

1. *Selected extracts of the SMDs of the products of the AC series excluding the RHRAC164245. Refer to the SMD of each products for the complete specification, including applicable conditions.*
2. *For RHFAC174 and 191 the AMR of STMicroeletronics products is above the -0.5 V dc to +6.0 V dc stated in the SMD. For RHFAC521 and 540, in absence of other legacy evidences, the -0.5 V dc to +6.0 V dc limits stated in the SMD should apply.*
3. *SMD includes specific notes transposed below as applicable for STMicroelectonics.*

   *-For AC14 and AC14A : the value may be exceeded provided the input and output current ratings are observed.*

   *-For AC574, ACT244, ACT273 : The input negative voltage rating may be exceeded provided that the input clamp current rating is observed*

   *-For ACT11, ACT14, ACT86, ACT541 : The input and output negative voltage ratings may be exceeded provided that the input and output clamp current ratings are observed*

   *-For ACT161 : Unless otherwise noted, all voltages are referenced to GND*
4. *Except RHFAC16244, RHFACT04, 08, 32, 16244, 16245, 16373, 16374 : 50 mA*
5. *Except RHFACT08 : 440 mW*
6. *Except RHFAC86, 521, 2525 : 300 °C*

*Note: Stressing the device above the ratings listed in the "absolute maximum ratings" in Table 2 may cause permanent damage to the device. These are stress ratings only and operation of the device at these or any other conditions above those indicated in Table 4 and Table 5 is not implied. Exposure to absolute maximum rating conditions for more than short periods may affect the device reliability.*

**Table 3. ESD ratings for AC and ACT series**

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{ESD}$ | Sustainable electrostatic discharge human body model | ± 2000 | V |

**Table 4. Recommended operating conditions - AC series**

| Parameter | Description | Value | Unit |
|---|---|---|---|
| $V_{CC}$ | Supply voltage range | 2 to 6 | V |
| $V_{IN}$ | DC input voltage range | 0 to $V_{CC}$ | V |
| $V_{OUT}$ | Output voltage range | 0 to $V_{CC}$ | V |
| $T_{OP}$ | Operation temperature range | -55 to +125 | °C |
| dt/dv | Input transition time (1) at $V_{CC}$ = 3.0 and $V_{CC}$ = 5.5 V | 0 to 8 | ns/V |

1. *30% to 70% or 70% to 30% of $V_{CC}$. Derates system propagation delays by difference in rise time to switch point for tr or $t_f$ > 1 ns/V*

**Table 5. Recommended operating conditions - ACT series**

| Parameter | Description | Value | Unit |
|---|---|---|---|
| $V_{CC}$ | Supply voltage range | 4.5 to 6 | V |
| $V_{IN}$ | DC input voltage range | 0 to $V_{CC}$ | V |
| $V_{OUT}$ | Output voltage range | 0 to $V_{CC}$ | V |
| $T_{OP}$ | Operation temperature range | -55 to +125 | °C |
| dt/dv | Input transition time (1) at $V_{CC}$ = 3.0 and $V_{CC}$ = 5.5 V | 0 to 8 | ns/V |

1. *30% to 70% or 70% to 30% of $V_{CC}$. Derates system propagation delays by difference in rise time to switch point for tr or $t_f$ > 1 ns/V.*

**Table 6. Thermal resistance junction to case**

| Device | SMD | $R_{th-jc}$ °C/W | Device | SMD | $R_{th-jc}$ °C/W |
|---|---|---|---|---|---|
| **AC Logic** | | | | | |
| 54AC00 | 5962F87549 | 27.7 | 54AC174 | 5962F87626 | 20.0 |
| 54AC02 | 5962F87612 | 27.7 | 54AC191 | 5962F89749 | 26.6 |
| 54AC04 | 5962F87609 | 27.7 | 54AC240 | 5962F87550 | 20.0 |
| 54AC08 | 5962F87615 | 27.7 | 54AC244 | 5962F87552 | 20.0 |
| 54AC10 | 5962F87610 | 26.6 | 54AC245 | 5962F87758 | 20.0 |
| 54AC11 | 5962F87611 | 26.6 | 54AC273 | 5962F87756 | 20.0 |
| 54AC14 | 5962F87624 | 27.7 | 54AC373 | 5962F87555 | 20.0 |
| 54AC14A | 5962F87624 | 27.7 | 54AC374 | 5962F87694 | 20.0 |
| 54AC32 | 5962F87614 | 27.7 | 54AC541 | 5962F88706 | 20.0 |
| 54AC74 | 5962F88520 | 27.7 | 54AC574 | 5962F96773 | 20.0 |
| 54AC86 | 5962F89550 | 27.7 | 54AC2525 | 5962F92174 | 20.0 |
| 54AC138 | 5962F87622 | 26.6 | 54AC16244 | 5962F04210 | 10.0 |
| 54AC139 | 5962F87623 | 26.6 | 54AC16245 | 5962F04211 | 10.0 |
| 54AC151 | 5962F87691 | 26.6 | 54AC16373 | 5962F04212 | 10.0 |
| 54AC157 | 5962F89539 | 26.6 | 54AC16374 | 5962F04213 | 10.0 |
| 54AC161 | 5962F89561 | 26.6 | 54AC164245 | 5962R98580 | 8.0 |
| **ACT Logic** | | | | | |
| 54ACT00 | 5962F87699 | 27.7 | 54ACT161 | 5962F91722 | 26.6 |
| 54ACT02 | 5962F89791 | 27.7 | 54ACT240 | 5962F87759 | 20.0 |
| 54ACT04 | 5962F89734 | 27.7 | 54ACT244 | 5962F87760 | 20.0 |
| 54ACT08 | 5962F89547 | 27.7 | 54ACT245 | 5962F87663 | 20.0 |
| 54ACT10 | 5962F92182 | 26.6 | 54ACT273 | 5962F01527 | 20.0 |
| 54ACT11 | 5962F90772 | 26.6 | 54ACT373 | 5962F87556 | 20.0 |
| 54ACT14 | 5962F96813 | 27.7 | 54ACT374 | 5962F87631 | 20.0 |
| 54ACT32 | 5962F89736 | 27.7 | 54ACT541 | 5962F89795 | 20.0 |
| 54ACT74 | 5962F87525 | 27.7 | 54ACT574 | 5962F89601 | 20.0 |
| 54ACT86 | 5962F90687 | 27.7 | 54ACT16244 | 5962F92022 | 10.0 |
| 54ACT138 | 5962F87554 | 26.6 | 54ACT16245 | 5962F92023 | 10.0 |
| 54ACT139 | 5962F87553 | 26.6 | 54ACT16373 | 5962F92024 | 10.0 |
| 54ACT157 | 5962F89688 | 26.6 | 54ACT16374 | 5962F92025 | 10.0 |

*Note: The junction to top case thermal resistance refers to the top case of the Flat packaged version of each product. It is an extrapolated value based on the measurement few parts of various size using JESD51 standard Jedec best practice guidelines.*

# 4 Electrical characteristics

The electrical specification of each type is provided in its SMD, which can be directly accessed from Table 1 column QML SMD#.

Unless otherwise specified, the SMD's electrical specification is applicable to all part numbers listed in table 19, ordering infomation, including engineering models.

## 4.1 Maximum frequency

Some SMDs provide the maximum authorized frequency of the products. Whenever it is not, the maxium frequency can be estimated from the maximum propagation time provided in the SMD of each products. However, the maximum frequency of a gate is also impacted by the transition times and the impedance seen by outputs. In absence of product specific characterization, significant derating must apply to such estimated.

The maximum frequency typically decreases when the temperature increases.

# 5 Radiation

## 5.1 Total ionization dose

All the products of the series are RHA guaranteed at 300 krad(Si) as per MIL-STD-883 cond A, i.e for each type, on 10 pieces, 5 biased and 5 unbiased, at high dose rate (200 krad(Si)/hour).

Each wafer lot is in addition submitted to wafer lot qualification on 5 pieces from 3 different wafers in the conditions identified during the qualification as worst case, biased, at the same dose rate and with the same test method. The acceptance criteria is 0 fail.

Unless otherwise specified, the absolute max ratings, the recommended operating conditions and the electrical and timing characteristics provided in each SMD and summarized in Tables 2, 4, and 5 are applicable up to the maximun guaranteed TID level.

## 5.2 Heavy ions

### 5.2.1 Test strategy

The 54AC series is characterized under heavy ions through 5 test vehicles covering the whole series by similarity, the 54AC14, 54AC174, 54ACT244, 54AC374 and 54AC164245, using dice from the latest AMK6 6 inches diffusion line. The test results are available upon request.

Table 9 provides a description of the SEE class covered by each test vehicle while table 10 provides the SEE classification of each device of the serie.

### 5.2.2 SEE test results summary

The Table 7 provides a summary of the SEE test results for the AMK6 wafer fab.

Table 8 gives the test vehicle covering each specific type and Table 9 describes the key features covered by the SEE test of each SEE test vehicle.

**Table 7. AC series SEE test summary**

| Device type | SEL @ 6V | Voltage | SET | | SEU | |
|---|---|---|---|---|---|---|
| | | | LETth [MeV.cm²/mg] | σ | LETth [MeV.cm²/mg] | σ |
| 54AC14 | Free up to 125 MeV.cm²/mg | 1V8 | > 8.7 | $1.7x10^{-4}$ | > 17 | $1.8x10^{-6}$ |
| | | 3V | > 17 | $1.8x10^{-4}$ | > 33 | $1.5x10^{-6}$ |
| | | 4V5 | > 33 | $4x10^{-6}$ | > 66 | - |
| 54AC174 | | 1V8 | > 8.7 | $3.2x10^{-6}$ | 8 | $1.2x10^{-5}$ |
| | | 3V | > 8.7 | $8x10^{-7}$ | > 8.7 | $3.2x10^{-6}$ |
| | | 4V5 | > 17 | $5x10^{-7}$ | > 17 | $1.9x10^{-6}$ |
| 54ACT244 | | 4V5 outputs activated | > 33 | $3.3x10^{-6}$ | > 33 | $1.1x10^{-4}$ |
| | | 4V5 outputs high-Z | 8 | $1.5x10^{-3}$ | Not applicable | |
| 54AC374 | | 1V8 | >8.7 | $1.6x10^{-5}$ | 8 | $3.6x10^{-5}$ |
| | | 3V | >17 | $7x10^{-6}$ | >8.7 | $1.5x10^{-5}$ |
| | | 4V5 | 16 | $3x10^{-6}$ | >17 | $9.8x10^{-6}$ |
| 54AC164245 | | 3V | 1 | $7.3x10^{-5}$ | Not applicable | |

**Table 8. Radiation test vehicle coverage by product type**

| Device | SMD | Class | Test Vehicle | Device | SMD | Class | Test Vehicle |
|---|---|---|---|---|---|---|---|
| **54AC00** | 5962F87549 | 1 | 54AC14 | **54ACT174** | 5962F87757 | 2 | 54AC174 |
| **54ACT00** | 5962F87699 | 1 | 54AC14 | **54AC191** | 5962F89749 | 2 | 54AC174 |
| **54AC02** | 5962F87612 | 1 | 54AC14 | **54ACT191** | 5962F04228 | 2 | 54AC174 |
| **54ACT02** | 5962F89791 | 1 | 54AC14 | **54AC240** | 5962F87550 | 3 | 54ACT244 |
| **54AC04** | 5962F87609 | 1 | 54AC14 | **54ACT240** | 5962F87759 | 3 | 54ACT244 |
| **54ACT04** | 5962F89734 | 1 | 54AC14 | **54AC244** | 5962F87552 | 3 | 54ACT244 |
| **54AC08** | 5962F87615 | 1 | 54AC14 | **54ACT244** | **5962F87760** | 3 | **54ACT244** |
| **54ACT08** | 5962F89547 | 1 | 54AC14 | **54AC245** | 5962F87758 | 3 | 54ACT244 |
| **54AC10** | 5962F87610 | 1 | 54AC14 | **54ACT245** | 5962F87663 | 3 | 54ACT244 |
| **54ACT10** | 5962F92182 | 1 | 54AC14 | **54AC273** | 5962F87756 | 2 | 54AC174 |
| **54AC11** | 5962F87611 | 1 | 54AC14 | **54ACT273** | 5962F01527 | 2 | 54AC174 |
| **54ACT11** | 5962F90772 | 1 | 54AC14 | **54AC373** | 5962F87555 | 4 | 54AC374 |
| **54AC14** | **5962F87624** | 1 | **54AC14** | **54ACT373** | 5962F87556 | 4 | 54AC374 |
| **54AC14A** | 5962F87624 | 1 | 54AC14 | **54AC374** | **5962F87694** | 4 | **54AC374** |
| **54ACT14** | 5962F96813 | 1 | 54AC14 | **54ACT374** | 5962F87631 | 4 | 54AC374 |
| **54AC32** | 5962F87614 | 1 | 54AC14 | **54AC521** | 5962F90985 | 1 | 54AC14 |
| **54ACT32** | 5962F89736 | 1 | 54AC14 | **54AC540** | 5962F87695 | 3 | 54ACT244 |
| **54AC74** | 5962F88520 | 2 | 54AC174 | **54AC541** | 5962F88706 | 3 | 54ACT244 |
| **54ACT74** | 5962F87525 | 2 | 54AC174 | **54ACT541** | 5962F89795 | 3 | 54ACT244 |
| **54AC86** | 5962F89550 | 1 | 54AC14 | **54AC574** | 5962F96773 | 4 | 54AC374 |
| **54ACT86** | 5962F90687 | 1 | 54AC14 | **54ACT574** | 5962F89601 | 4 | 54AC374 |
| **54AC138** | 5962F87622 | 1 | 54AC14 | **54AC2525** | 5962F92174 | 1 | 54AC14 |
| **54ACT138** | 5962F87554 | 1 | 54AC14 | **54AC16244** | 5962F04210 | 3 | 54ACT244 |
| **54AC139** | 5962F87623 | 1 | 54AC14 | **54ACT16244** | 5962F92022 | 3 | 54ACT244 |
| **54ACT139** | 5962F87553 | 1 | 54AC14 | **54AC16245** | 5962F04211 | 3 | 54ACT244 |
| **54AC151** | 5962F87691 | 1 | 54AC14 | **54ACT16245** | 5962F92023 | 3 | 54ACT244 |
| **54ACT151** | 5962F88756 | 1 | 54AC14 | **54AC16373** | 5962F04212 | 4 | 54AC374 |
| **54AC157** | 5962F89539 | 1 | 54AC14 | **54ACT16373** | 5962F92024 | 4 | 54AC374 |
| **54ACT157** | 5962F89688 | 1 | 54AC14 | **54AC16374** | 5962F04213 | 4 | 54AC374 |
| **54AC161** | 5962F89561 | 2 | 54AC174 | **54ACT16374** | 5962F92025 | 4 | 54AC374 |
| **54ACT161** | 5962F91722 | 2 | 54AC174 | **54AC164245** | **5962R98580** | 5 | **54AC164245** |
| **54AC174** | **5962F87626** | 2 | **54AC174** | | | | |

**Table 9. Radiation test vehicles classes**

| Test vehicle | Class |
|---|---|
| 54AC14 | 1 - Basic gates and Schmitt trigger |
| 54AC174 | 2 - Basic gates and Flip-flops |
| 54ACT244 | 3 - Basic gates with tri-state outputs |
| 54AC374 | 4 - Basic gate, flip-flops and tri-state |
| 54AC164245 | 5 - Basic gates and cold spare |

# 6 Package information

To meet environmental requirements, ST offers these devices in different grades of ECOPACK packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions, and product status are available at: www.st.com. ECOPACK is an ST trademark.

## 6.1 Ceramic Flat-14 package information

**Figure 2. Ceramic Flat-14 package outline**

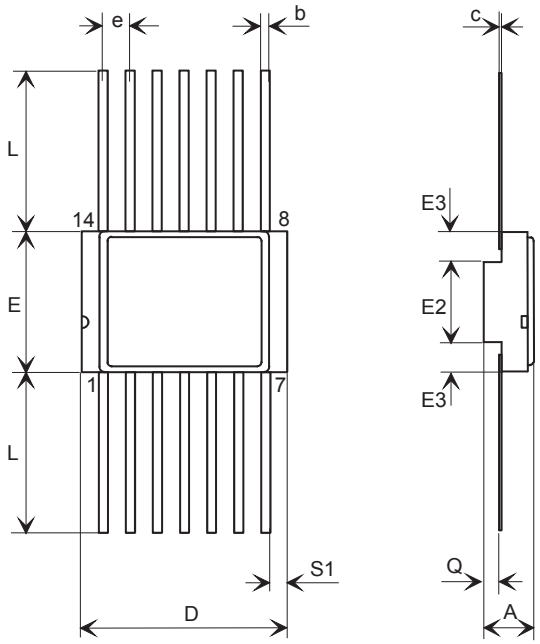



**Table 10. Ceramic Flat-14 mechanical data**

| Symbol | Dimensions (mm) | | | Dimensions (inches) | | |
|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.31 | | 2.72 | 0.091 | | 0.107 |
| b | 0.38 | | 0.48 | 0.015 | | 0.019 |
| c | 0.10 | | 0.18 | 0.004 | | 0.007 |
| D | 9.27 | | 9.73 | 0.365 | | 0.383 |
| E | 6.19 | | 6.50 | 0.244 | | 0.256 |
| E2 | | 3.68 | | | 0.145 | |
| E3 | 0.76 | | | 0.030 | | |
| e | | 1.27 | | | 0.050 | |
| L | 6.86 | | 7.62 | 0.250 | | 0.300 |
| Q | 0.66 | | 1.14 | 0.026 | | 0.045 |
| S1 | 0.13 | | | 0.005 | | |

## 6.2 Ceramic Flat-16 package information

Figure 3. **Ceramic Flat-16 package outline**

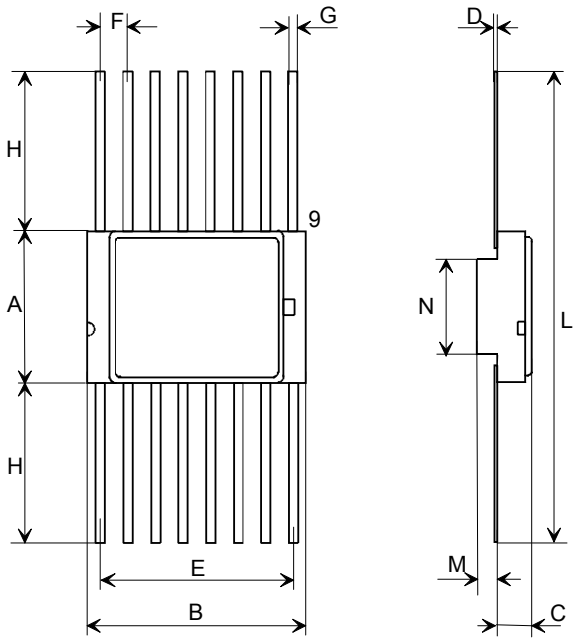



Table 11. **Ceramic Flat-16 package mechanical data**

| Symbol | Dimensions (mm) | | | Dimensions (inches) | | |
|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 6.75 | 6.91 | 7.06 | 0.266 | 0.272 | 0.278 |
| B | 9.76 | 9.94 | 10.14 | 0.384 | 0.391 | 0.399 |
| C | 1.49 | | 1.95 | 0.059 | | 0.077 |
| D | 0.102 | 0.127 | 0.152 | 0.004 | 0.005 | 0.006 |
| E | 8.76 | 8.89 | 9.01 | 0.345 | 0.350 | 0.355 |
| F | | 1.27 | | | 0.050 | |
| G | 0.38 | 0.43 | 0.48 | 0.015 | 0.017 | 0.019 |
| H | 6.0 | | | 0.236 | | |
| L | 18.75 | | 22.0 | 0.738 | | 0.866 |
| M | 0.33 | 0.38 | 0.43 | 0.013 | 0.015 | 0.017 |
| N | | 4.31 | | | 0.170 | |

## 6.3 Ceramic Flat-20 package information

Figure 4. **Ceramic Flat-20 package outline**

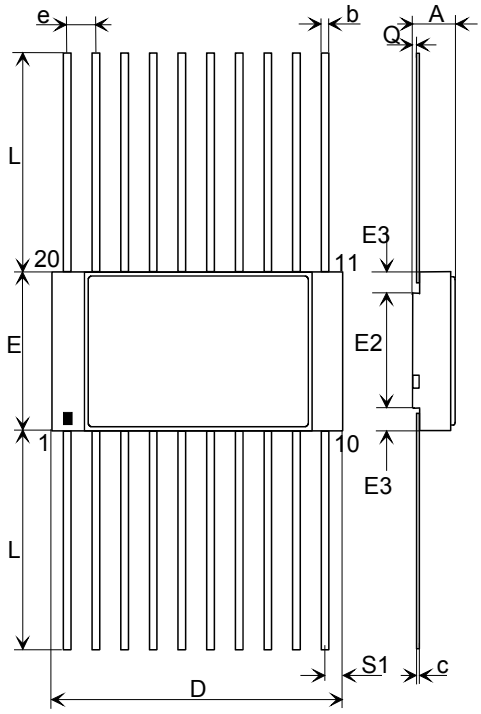



Table 12. **Ceramic Flat-20 package mechanical data**

| Symbol | Dimensions (mm) | | | Dimensions (inches) | | |
|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 1.91 | | 2.21 | 0.075 | | 0.087 |
| b | 0.38 | | 0.48 | 0.015 | | 0.019 |
| c | 0.076 | | 0.152 | 0.003 | | 0.006 |
| D | 12.83 | | 13.08 | 0.505 | | 0.515 |
| E | 6.99 | | 7.24 | 0.275 | | 0.285 |
| E2 | 5.05 | 5.21 | 5.36 | 0.199 | 0.205 | 0.211 |
| E3 | | 0.95 | | | 0.037 | |
| e | 1.14 | | 1.40 | 0.045 | | 0.055 |
| L | 6.35 | | 9.39 | 0.250 | | 0.370 |
| Q | 0.25 | | | 0.010 | | |
| S1 | | 0.55 | | | 0.022 | |

## 6.4 Ceramic Flat-48 package information

Figure 5. **Ceramic Flat-48 package outline**

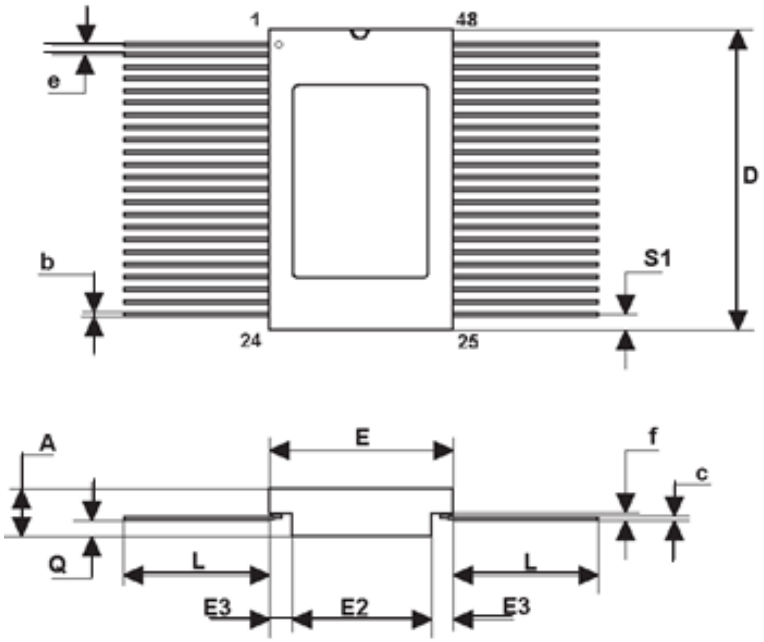



Table 13. **Ceramic Flat-48 package mechanical data**

| Symbol | Dimensions (mm) | | | Dimensions (inches) | | |
|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.18 | 2.47 | 2.72 | 0.086 | 0.097 | 0.107 |
| b | 0.20 | 0.254 | 0.30 | 0.008 | 0.010 | 0.012 |
| c | 0.12 | 0.15 | 0.18 | 0.005 | 0.006 | 0.007 |
| D | 15.57 | 15.75 | 15.92 | 0.613 | 0.620 | 0.627 |
| E | 9.52 | 9.65 | 9.78 | 0.375 | 0.380 | 0.385 |
| E2 | 6.22 | 6.35 | 6.48 | 0.245 | 0.250 | 0.255 |
| E3 | 1.52 | 1.65 | 1.78 | 0.060 | 0.065 | 0.070 |
| e | | 0.635 | | | 0.025 | |
| f | | 0.20 | | | 0.008 | |
| L | 6.85 | 8.38 | 9.40 | 0.270 | 0.330 | 0.370 |
| Q | 0.66 | 0.79 | 0.92 | 0.026 | 0.031 | 0.036 |
| S1 | 0.25 | 0.43 | 0.61 | 0.010 | 0.017 | 0.024 |

## 6.5 Ceramic DIL-14 package information

Figure 6. **Ceramic DIL-14 package outline**

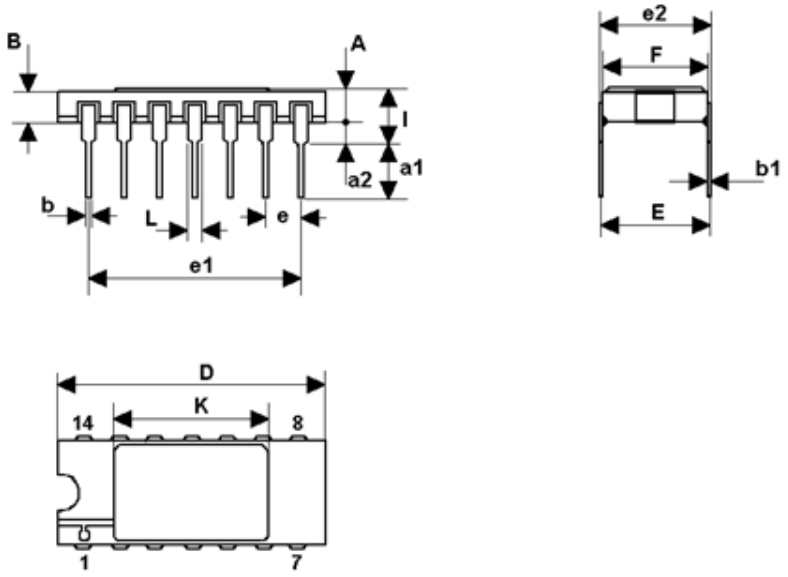



Table 14. **Ceramic DIL-14 package mechanical data**

| Symbol | Dimensions (mm) | | | Dimensions (inches) | | |
|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.1 | | 2.54 | 0.083 | | 0.100 |
| a1 | 3.00 | | 3.70 | 0.118 | | 0.146 |
| a2 | 0.63 | 0.88 | 1.14 | 0.025 | 0.035 | 0.045 |
| B | 1.82 | 2.03 | 2.39 | 0.072 | 0.080 | 0.094 |
| b | 0.40 | 0.45 | 0.50 | 0.016 | 0.018 | 0.020 |
| b1 | 0.20 | 0.254 | 0.30 | 0.008 | 0.010 | 0.012 |
| D | 18.79 | 19.00 | 19.20 | 0.740 | 0.748 | 0.756 |
| E | 7.36 | 7.62 | 7.87 | 0.290 | 0.300 | 0.310 |
| e | | 2.54 | | | 0.100 | |
| e1 | 15.11 | 15.24 | 15.37 | 0.595 | 0.600 | 0.605 |
| e2 | 7.62 | 7.87 | 8.12 | 0.300 | 0.310 | 0.320 |
| F | 7.11 | | 7.75 | 0.280 | | 0.305 |
| I | | | 3.70 | | | 0.146 |
| K | 10.90 | | 12.1 | 0.429 | | 0.476 |
| L | 1.14 | 1.27 | 1.5 | 0.045 | 0.050 | 0.059 |

## 6.6 Ceramic DIL-16 package information

Figure 7. **Ceramic DIL-16 package outline**

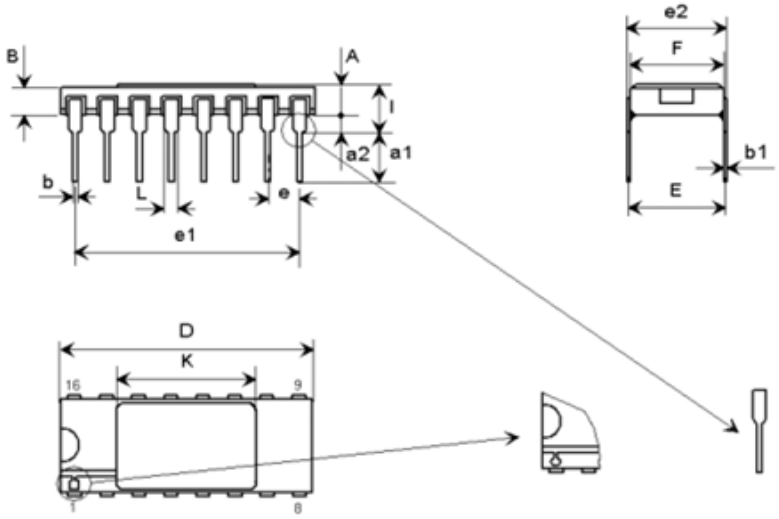



Table 15. **Ceramic DIL-16 package mechanical data**

| Symbol | Dimensions(mm) | | | Dimensions (inches) | | |
|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.10 | | 2.71 | 0.083 | | 0.107 |
| a1 | 3.00 | | 3.70 | 0.118 | | 0.146 |
| a2 | 0.63 | 0.88 | 1.14 | 0.025 | 0.035 | 0.045 |
| B | 1.82 | | 2.39 | 0.072 | | 0.094 |
| b | 0.40 | 0.45 | 0.50 | 0.016 | 0.018 | 0.020 |
| b1 | 0.20 | 0.254 | 0.30 | 0.008 | 0.010 | 0.012 |
| D | 20.06 | 20.32 | 20.58 | 0.790 | 0.800 | 0.810 |
| E | 7.36 | 7.62 | 7.87 | 0.290 | 0.300 | 0.310 |
| e | | 2.54 | | | 0.100 | |
| e1 | 17.65 | 17.78 | 17.90 | 0.695 | 0.700 | 0.705 |
| e2 | 7.62 | 7.87 | 8.12 | 0.300 | 0.310 | 0.320 |
| F | 7.29 | 7.49 | 7.70 | 0.287 | 0.295 | 0.303 |
| I | | | 3.83 | | | 0.151 |
| K | 10.90 | | 12.10 | 0.429 | | 0.476 |
| L | 1.14 | | 1.50 | 0.045 | | 0.059 |

## 6.7 Ceramic DIL-20 package information

Figure 8. **Ceramic DIL-20 package outline**

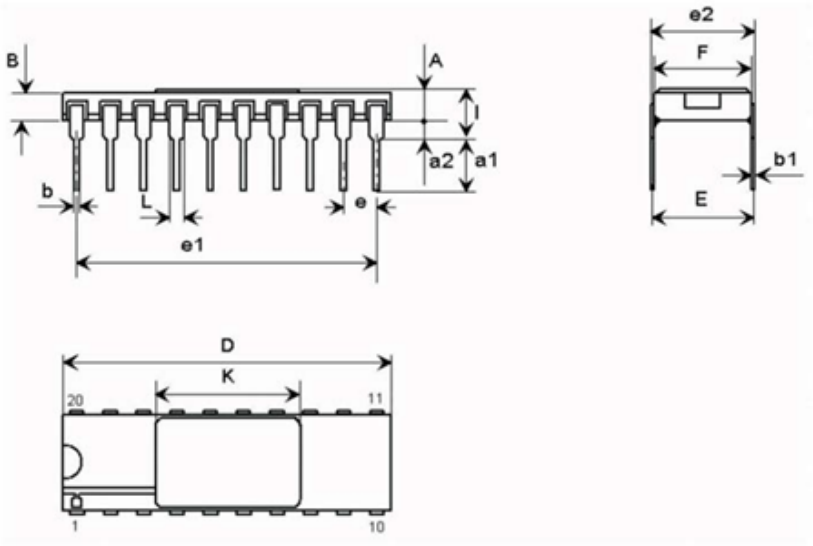



Table 16. **Ceramic DIL-20 package mechanical data**

| Symbol | Dimensions (mm) | | | Dimensions (inches) | | |
|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.1 | | 2.72 | 0.083 | | 0.107 |
| a1 | 3 | | 3.7 | 0.118 | | 0.146 |
| a2 | 0.63 | 0.88 | 1.14 | 0.025 | 0.035 | 0.045 |
| B | 1.93 | 2.03 | 2.23 | 0.076 | 0.080 | 0.088 |
| b | 0.4 | 0.45 | 0.5 | 0.016 | 0.018 | 0.020 |
| b1 | 0.2 | 0.254 | 0.3 | 0.008 | 0.010 | 0.012 |
| D | 25.14 | 25.4 | 25.65 | 0.990 | 1.000 | 1.010 |
| E | 7.36 | 7.62 | 7.87 | 0.290 | 0.300 | 0.310 |
| e | | 2.54 | | | 0.100 | |
| e1 | 22.73 | 22.86 | 22.99 | 0.895 | 0.900 | 0.905 |
| e2 | 7.62 | 7.87 | 8.12 | 0.300 | 0.310 | 0.320 |
| F | 7.29 | 7.49 | 7.62 | 0.287 | 0.295 | 0.300 |
| I | | | 3.86 | | | 0.152 |
| K | 11.3 | | 11.56 | 0.445 | | 0.455 |
| L | 1.14 | 1.27 | 1.4 | 0.045 | 0.050 | 0.055 |

# 7 Ordering information

Table 17. **Ordering information**

| ST part number (1) | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| **AC Logic** | | | | | | | |
| RHFAC00K1 | - | EM | | Flat-14 | Gold | Strip Pack | 0.53 |
| RHFAC00K01V | 5962F8754901VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC00K02V | 5962F8754901VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC00K03V | 5962F8754901VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC00K04V | 5962F8754901VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC00D03V | 5962F8754901VCC | QML-V | | DIL-14 | Gold | | 2.20 |
| RHFAC02K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC02K01V | 5962F8761201VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC02K02V | 5962F8761201VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC02K03V | 5962F8761201VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC02K04V | 5962F8761201VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC02D03V | 5962F8761201VCC | QML-V | | DIL-14 | Gold | | 2.20 |
| RHFAC04K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC04K01V | 5962F8760901VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC04K02V | 5962F8760901VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC04K03V | 5962F8760901VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC04K04V | 5962F8760901VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC04D03V | 5962F8760901VCC | QML-V | | DIL-14 | Gold | | 2.20 |
| RHFAC08K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC08K01V | 5962F8761501VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC08K02V | 5962F8761501VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC08K03V | 5962F8761501VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC08K04V | 5962F8761501VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC08D03V | 5962F8761501VCC | QML-V | | DIL-14 | Gold | | 2.20 |
| RHFAC10K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC10K01V | 5962F8761001VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC10K02V | 5962F8761001VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC10K03V | 5962F8761001VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC10K04V | 5962F8761001VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC11K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC11K01V | 5962F8761101VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC11K02V | 5962F8761101VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC11K03V | 5962F8761101VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC11K04V | 5962F8761101VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC14K1 | - | EM | Type 01 | Flat-14 | Gold | | 0.53 |
| RHFAC14K01V | 5962F8762401VXC | QML-V | Type 01 | Flat-14 | Gold | | 0.53 |

| ST part number (1) | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| RHFAC14K02V | 5962F8762401VXA | QML-V | Type 01 | Flat-14 | Solder Dip | | 0.53 |
| RHFAC14K03V | 5962F8762401VYC | QML-V | Type 01; Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC14K04V | 5962F8762401VYA | QML-V | Type 01; Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC14D03V | 5962F8762401VCC | QML-V | Type 01 | DIL-14 | Gold | | 2.20 |
| RHFAC14AK1 | - | EM | Type 02 Low current | Flat-14 | Gold | | 0.53 |
| RHFAC14AK01V | 5962F8762403VXC | QML-V | Type 02 Low current | Flat-14 | Gold | | 0.53 |
| RHFAC14AK02V | 5962F8762403VXA | QML-V | Type 02 Low current | Flat-14 | Solder Dip | | 0.53 |
| RHFAC14AK03V | 5962F8762403VYC | QML-V | Type 02; Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC14AK04V | 5962F8762403VYA | QML-V | Type 02; Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC32K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC32K01V | 5962F8761401VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC32K02V | 5962F8761401VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC32K03V | 5962F8761401VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC32K04V | 5962F8761401VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC32D03V | 5962F8761401VCC | QML-V | | DIL-14 | Gold | | 2.20 |
| RHFAC74K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC74K01V | 5962F8852003VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC74K02V | 5962F8852003VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC74K03V | 5962F8852003VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC74K04V | 5962F8852003VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC74D03V | 5962F8852003VCC | QML-V | | DIL-14 | Gold | Strip Pack | 2.20 |
| RHFAC86K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC86K01V | 5962F8955001VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC86K02V | 5962F8955001VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC86K03V | 5962F8955001VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC86K04V | 5962F8955001VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC138K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFAC138K01V | 5962F8762201VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFAC138K02V | 5962F8762201VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFAC138K03V | 5962F8762201VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFAC138K04V | 5962F8762201VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFAC138D03V | 5962F8762201VEC | QML-V | | DIL-16 | Gold | | 2.20 |
| RHFAC139K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFAC139K01V | 5962F8762301VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFAC139K02V | 5962F8762301VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFAC139K03V | 5962F8762301VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFAC139K04V | 5962F8762301VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFAC151K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFAC151K01V | 5962F8769102VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFAC151K02V | 5962F8769102VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFAC151K03V | 5962F8769102VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |

| ST part number (1) | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| RHFAC151K04V | 5962F8769102VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFAC157K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFAC157K01V | 5962F8953901VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFAC157K02V | 5962F8953901VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFAC157K03V | 5962F8953901VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFAC157K04V | 5962F8953901VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFAC161K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFAC161K01V | 5962F8956101VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFAC161K02V | 5962F8956101VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFAC161K03V | 5962F8956101VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFAC161K04V | 5962F8956101VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFAC174K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFAC174K01V | 5962F8762602VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFAC174K02V | 5962F8762602VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFAC174K03V | 5962F8762602VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFAC174K04V | 5962F8762602VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFAC191K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFAC191K01V | 5962F8974902VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFAC191K02V | 5962F8974902VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFAC191K03V | 5962F8974902VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFAC191K04V | 5962F8974902VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | Strip Pack | 0.65 |
| RHFAC191D03V | 5962F8974902VEC | QML-V | | DIL-16 | Gold | | 2.20 |
| RHFAC240K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC240K01V | 5962F8755001VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC240K02V | 5962F8755001VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC240K03V | 5962F8755001VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC240K04V | 5962F8755001VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC244K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC244K01V | 5962F8755201VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC244K02V | 5962F8755201VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC244K03V | 5962F8755201VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC244K04V | 5962F8755201VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC245K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC245K01V | 5962F8775802VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC245K02V | 5962F8775802VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC245K03V | 5962F8775802VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC245K04V | 5962F8775802VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC273K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC273K01V | 5962F8775601VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC273K02V | 5962F8775601VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC273K03V | 5962F8775601VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |

| ST part number [1] | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| RHFAC273K04V | 5962F8775601VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | Strip Pack | 0.66 |
| RHFAC373K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC373K01V | 5962F8755501VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC373K02V | 5962F8755501VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC373K03V | 5962F8755501VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC373K04V | 5962F8755501VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC374K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC374K01V | 5962F8769401VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC374K02V | 5962F8769401VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC374K03V | 5962F8769401VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC374K04V | 5962F8769401VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC521K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC521K01V | 5962F9098503VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC521K02V | 5962F9098503VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC521K03V | 5962F9098503VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC521K04V | 5962F9098503VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC540K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC540K01V | 5962F8769502VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC540K02V | 5962F8769502VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC540K03V | 5962F8769502VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC540K04V | 5962F8769502VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC541K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC541K01V | 5962F8870601VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC541K02V | 5962F8870601VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC541K03V | 5962F8870601VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC541K04V | 5962F8870601VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC541K05V | 5962F8870602VYC | QML-V | Grounded lid; Type 2 [2] | Flat-20 | Gold | | 0.66 |
| RHFAC541K06V | 5962F8870602VYA | QML-V | Grounded lid; Type 2 [2] | Flat-20 | Solder Dip | | 0.66 |
| RHFAC574K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFAC574K01V | 5962F9677302VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFAC574K02V | 5962F9677302VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFAC574K03V | 5962F9677302VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFAC574K04V | 5962F9677302VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFAC2525K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFAC2525K01V | 5962F9217402VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFAC2525K02V | 5962F9217402VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFAC2525K03V | 5962F9217402VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFAC2525K04V | 5962F9217402VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFAC16244K1 | - | EM | | Flat-48 | Gold | | 1.22 |

| ST part number (1) | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| RHFAC16244K01V | 5962F0421001VXC | QML-V | | Flat-48 | Gold | Strip Pack | 1.22 |
| RHFAC16244K02V | 5962F0421001VXA | QML-V | | Flat-48 | Solder Dip | | 1.22 |
| RHFAC16244K03V | 5962F0421001VYC | QML-V | Grounded lid | Flat-48 | Gold | | 1.22 |
| RHFAC16244K04V | 5962F0421001VYA | QML-V | Grounded lid | Flat-48 | Solder Dip | | 1.22 |
| RHFAC16245K1 | - | EM | | Flat-48 | Gold | | 1.22 |
| RHFAC16245K01V | 5962F0421101VXC | QML-V | | Flat-48 | Gold | | 1.22 |
| RHFAC16245K02V | 5962F0421101VXA | QML-V | | Flat-48 | Solder Dip | | 1.22 |
| RHFAC16245K03V | 5962F0421101VYC | QML-V | Grounded lid | Flat-48 | Gold | | 1.22 |
| RHFAC16245K04V | 5962F0421101VYA | QML-V | Grounded lid | Flat-48 | Solder Dip | | 1.22 |
| RHFAC16373K1 | - | EM | | Flat-48 | Gold | | 1.22 |
| RHFAC16373K01V | 5962F0421201VXC | QML-V | | Flat-48 | Gold | | 1.22 |
| RHFAC16373K02V | 5962F0421201VXA | QML-V | | Flat-48 | Solder Dip | | 1.22 |
| RHFAC16373K03V | 5962F0421201VYC | QML-V | Grounded lid | Flat-48 | Gold | | 1.22 |
| RHFAC16373K04V | 5962F0421201VYA | QML-V | Grounded lid | Flat-48 | Solder Dip | | 1.22 |
| RHFAC16374K1 | - | EM | | Flat-48 | Gold | | 1.22 |
| RHFAC16374K01V | 5962F0421301VXC | QML-V | | Flat-48 | Gold | | 1.22 |
| RHFAC16374K02V | 5962F0421301VXA | QML-V | | Flat-48 | Solder Dip | | 1.22 |
| RHFAC16374K03V | 5962F0421301VYC | QML-V | Grounded lid | Flat-48 | Gold | | 1.22 |
| RHFAC16374K04V | 5962F0421301VYA | QML-V | Grounded lid | Flat-48 | Solder Dip | | 1.22 |
| RHRAC164245K1 | - | EM | | Flat-48 | Gold | | 1.22 |
| RHRAC164245K01V | 5962R9858008VYC | QML-V | 100 krad(Si) | Flat-48 | | | 1.22 |
| RHRAC164245K03V | 5962R9858008VZC | QML-V | 100 krad(Si) - Grounded lid | Flat-48 | | | 1.22 |
| **ACT Logic** | | | | | | | |
| RHFACT00K1 | - | EM | | Flat-14 | Gold | Strip Pack | 0.53 |
| RHFACT00K01V | 5962F8769903VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFACT00K02V | 5962F8769903VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT00K03V | 5962F8769903VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT00K04V | 5962F8769903VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT02K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT02K01V | 5962F8979101VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFACT02K02V | 5962F8979101VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT02K03V | 5962F8979101VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT02K04V | 5962F8979101VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT04K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT04K01V | 5962F8973403VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFACT04K02V | 5962F8973403VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT04K03V | 5962F8973403VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT04K04V | 5962F8973403VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT08K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT08K01V | 5962F8954703VXC | QML-V | | Flat-14 | Gold | | 0.53 |

| ST part number (1) | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| RHFACT08K02V | 5962F8954703VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT08K03V | 5962F8954703VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT08K04V | 5962F8954703VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT08D03V | 5962F8954703VCC | QML-V | | DIL-14 | Gold | | #N/A |
| RHFACT10K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT10K01V | 5962F9218202VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFACT10K02V | 5962F9218202VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT10K03V | 5962F9218202VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT10K04V | 5962F9218202VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT11K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT11K01V | 5962F9077202VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFACT11K02V | 5962F9077202VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT11K03V | 5962F9077202VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT11K04V | 5962F9077202VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT14K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT14K01V | 5962F9681301VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFACT14K02V | 5962F9681301VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT14K03V | 5962F9681301VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT14K04V | 5962F9681301VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT32K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT32K01V | 5962F8973603VXC | QML-V | | Flat-14 | Gold | Strip Pack | 0.53 |
| RHFACT32K02V | 5962F8973603VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT32K03V | 5962F8973603VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT32K04V | 5962F8973603VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT74K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT74K01V | 5962F8752503VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFACT74K02V | 5962F8752503VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT74K03V | 5962F8752503VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT74K04V | 5962F8752503VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT86K1 | - | EM | | Flat-14 | Gold | | 0.53 |
| RHFACT86K01V | 5962F9068702VXC | QML-V | | Flat-14 | Gold | | 0.53 |
| RHFACT86K02V | 5962F9068702VXA | QML-V | | Flat-14 | Solder Dip | | 0.53 |
| RHFACT86K03V | 5962F9068702VYC | QML-V | Grounded lid | Flat-14 | Gold | | 0.53 |
| RHFACT86K04V | 5962F9068702VYA | QML-V | Grounded lid | Flat-14 | Solder Dip | | 0.53 |
| RHFACT138K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFACT138K01V | 5962F8755403VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFACT138K02V | 5962F8755403VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFACT138K03V | 5962F8755403VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFACT138K04V | 5962F8755403VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFACT139K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFACT139K01V | 5962F8755302VXC | QML-V | | Flat-16 | Gold | | 0.65 |

| ST part number (1) | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| RHFACT139K02V | 5962F8755302VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFACT139K03V | 5962F8755302VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFACT139K04V | 5962F8755302VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFACT151K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFACT151K01V | 5962F8875602VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFACT151K02V | 5962F8875602VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFACT151K03V | 5962F8875602VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFACT151K04V | 5962F8875602VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFACT157K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFACT157K01V | 5962F8968802VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFACT157K02V | 5962F8968802VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFACT157K03V | 5962F8968802VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFACT157K04V | 5962F8968802VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFACT161K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFACT161K01V | 5962F9172202VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFACT161K02V | 5962F9172202VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFACT161K03V | 5962F9172202VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFACT161K04V | 5962F9172202VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFACT174K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFACT174K01V | 5962F8775702VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFACT174K02V | 5962F8775702VXA | QML-V | | Flat-16 | Solder Dip | Strip Pack | 0.65 |
| RHFACT174K03V | 5962F8775702VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFACT174K04V | 5962F8775702VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFACT191K1 | - | EM | | Flat-16 | Gold | | 0.65 |
| RHFACT191K01V | 5962F0422801VXC | QML-V | | Flat-16 | Gold | | 0.65 |
| RHFACT191K02V | 5962F0422801VXA | QML-V | | Flat-16 | Solder Dip | | 0.65 |
| RHFACT191K03V | 5962F0422801VYC | QML-V | Grounded lid | Flat-16 | Gold | | 0.65 |
| RHFACT191K04V | 5962F0422801VYA | QML-V | Grounded lid | Flat-16 | Solder Dip | | 0.65 |
| RHFACT240K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFACT240K01V | 5962F8775903VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFACT240K02V | 5962F8775903VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFACT240K03V | 5962F8775903VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFACT240K04V | 5962F8775903VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFACT244K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFACT244K01V | 5962F8776003VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFACT244K02V | 5962F8776003VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFACT244K03V | 5962F8776003VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFACT244K04V | 5962F8776003VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFACT245K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFACT245K01V | 5962F8766303VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFACT245K02V | 5962F8766303VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |

| ST part number (1) | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| RHFACT245K03V | 5962F8766303VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFACT245K04V | 5962F8766303VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFACT273K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFACT273K01V | 5962F0152701VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFACT273K02V | 5962F0152701VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFACT273K03V | 5962F0152701VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFACT273K04V | 5962F0152701VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFACT373K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFACT373K01V | 5962F8755603VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFACT373K02V | 5962F8755603VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFACT373K03V | 5962F8755603VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFACT373K04V | 5962F8755603VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFACT373K05V | 5962F8755604VYC | QML-V | Grounded lid, Type 04 | Flat-20 | Gold | | 0.66 |
| RHFACT373K06V | 5962F8755604VYA | QML-V | Grounded lid, Type 04 | Flat-20 | Solder Dip | | 0.66 |
| RHFACT374K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFACT374K01V | 5962F8763103VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFACT374K02V | 5962F8763103VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFACT374K03V | 5962F8763103VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFACT374K04V | 5962F8763103VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFACT541K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFACT541K01V | 5962F8979502VXC | QML-V | | Flat-20 | Gold | Strip Pack | 0.66 |
| RHFACT541K02V | 5962F8979502VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFACT541K03V | 5962F8979502VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFACT541K04V | 5962F8979502VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFACT574K1 | - | EM | | Flat-20 | Gold | | 0.66 |
| RHFACT574K01V | 5962F8960102VXC | QML-V | | Flat-20 | Gold | | 0.66 |
| RHFACT574K02V | 5962F8960102VXA | QML-V | | Flat-20 | Solder Dip | | 0.66 |
| RHFACT574K03V | 5962F8960102VYC | QML-V | Grounded lid | Flat-20 | Gold | | 0.66 |
| RHFACT574K04V | 5962F8960102VYA | QML-V | Grounded lid | Flat-20 | Solder Dip | | 0.66 |
| RHFACT16244K1 | - | EM | | Flat-48 | Gold | | 1.22 |
| RHFACT16244K01V | 5962F9202202VYC | QML-V | | Flat-48 | Gold | | 1.22 |
| RHFACT16244K02V | 5962F9202202VYA | QML-V | | Flat-48 | Solder Dip | | 1.22 |
| RHFACT16244K03V | 5962F9202202VZC | QML-V | Grounded lid | Flat-48 | Gold | | 1.22 |
| RHFACT16244K04V | 5962F9202202VZA | QML-V | Grounded lid | Flat-48 | Solder Dip | | 1.22 |
| RHFACT16245K1 | - | EM | | Flat-48 | Gold | | 1.22 |
| RHFACT16245K01V | 5962F9202302VYC | QML-V | | Flat-48 | Gold | | 1.22 |
| RHFACT16245K02V | 5962F9202302VYA | QML-V | | Flat-48 | Solder Dip | | 1.22 |
| RHFACT16245K03V | 5962F9202302VZC | QML-V | Grounded lid | Flat-48 | Gold | | 1.22 |
| RHFACT16245K04V | 5962F9202302VZA | QML-V | Grounded lid | Flat-48 | Solder Dip | | 1.22 |
| RHFACT16373K1 | - | EM | | Flat-48 | Gold | | 1.22 |
| RHFACT16373K01V | 5962F9202402VYC | QML-V | | Flat-48 | Gold | | 1.22 |

| ST part number (1) | SMD Pin | Quality level | Other features | Package | Finishing | Packing | Mass |
|---|---|---|---|---|---|---|---|
| RHFACT16373K02V | 5962F9202402VYA | QML-V | | Flat-48 | Solder Dip | Strip Pack | 1.22 |
| RHFACT16373K03V | 5962F9202402VZC | QML-V | Grounded lid | Flat-48 | Gold | | 1.22 |
| RHFACT16373K04V | 5962F9202402VZA | QML-V | Grounded lid | Flat-48 | Solder Dip | | 1.22 |
| RHFACT16374K1 | - | EM | | Flat-48 | Gold | | 1.22 |
| RHFACT16374K01V | 5962F9202502VYC | QML-V | | Flat-48 | Gold | | 1.22 |
| RHFACT16374K02V | 5962F9202502VYA | QML-V | | Flat-48 | Solder Dip | | 1.22 |
| RHFACT16374K03V | 5962F9202502VZC | QML-V | Grounded lid | Flat-48 | Gold | | 1.22 |
| RHFACT16374K04V | 5962F9202502VZA | QML-V | Grounded lid | Flat-48 | Solder Dip | | 1.22 |

1. *Contact your ST representative for information about availability and specific conditions for other versions and for products in die form transient.*
2. *Type 02 uses a dedicated die optimized to limit the peak current during transients.*

# 8 Other information

## 8.1 Product marking

The marking of the parts is described in table 18 and figures 9 for flight model and figure 10 for engineering model

**Figure 9. Product marking outline, flight model**

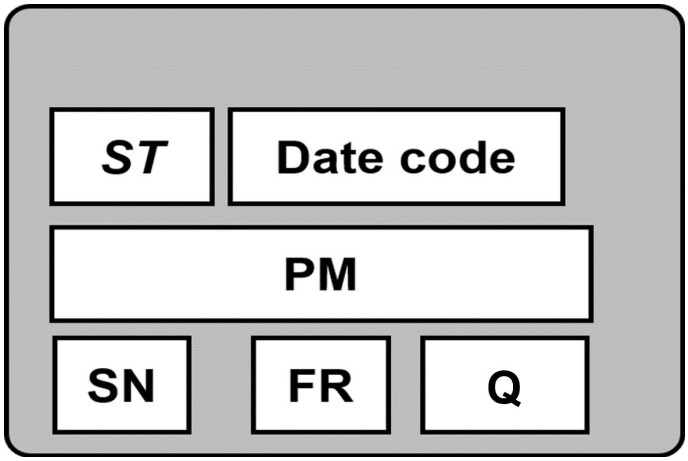



**Figure 10. Product marking outline, engineering model**

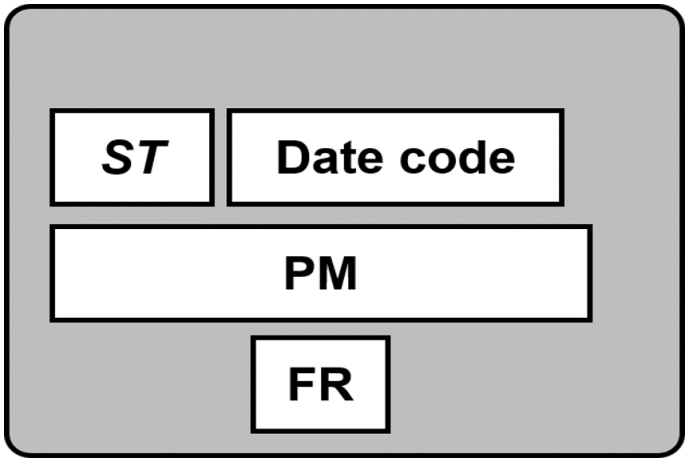



**Table 18. Product marking**

| Field | Description |
|---|---|
| ST | ST logo |
| Date code | YYWWA format: - YY : year's last 2 digits - WW : week of the year - A : lot in the week |
| PM | Specific product marking (EM : ST part number - FM : SMD PIN) |
| SN | Serial number |
| FR | Country of origin (France) |
| Q | QML-V logo |

## 8.2 Product documentation

Products are delivered with their default documentation and possibly separately ordered optional documentation. The documentation is provided by default on a CD-ROM shipped in an envelope placed in the shipment box of the parts. An additional paper copy of the certificate of conformance is provided in the envelope.

*Note: Contact your ST representative for information about secured ftp transfer.*

The documentation, depends on the quality level of the parts, as described in the table below:

**Table 19. Default documentation by quality level**

| Quality level | Item |
|---|---|
| Engineering Model | Certificate of conformance including:<br>• Customer name<br>• Customer purchase order number<br>• ST sales order number & item<br>• ST part number<br>• Quantity delivered<br>• Date code<br>• Reference to ST datasheet reference to TN1181 on engineering models<br>• ST Rennes assembly lot ID |
| QML-V Flight | Certificate of conformance including:<br>• Customer name<br>• Customer purchase order number<br>• ST sales order number & item<br>• ST part number<br>• Quantity delivered<br>• Date code<br>• Serial numbers<br>• Group C reference<br>• Group D reference<br>• Reference to the applicable<br>• SMD ST Rennes assemblyy lot ID<br>Quality Control Inspection (groups A, B, C, D, E)<br>Screening electrical data<br>Precap report<br>PIND (1) test<br>SEM (2) inspection report<br>X-Ray Report |

1. *PIND : Particle Impact Noise Detection.*
2. *SEM : Scanning Electronic Microscope.*

## Revision history

Table 20. **Document revision history**

| Date | Version | Changes |
|---|---|---|
| 06-Apr-2010 | 1 | Initial release. |
| 02-Aug-2011 | 2 | Added Note: on page 11, Note: on page 12, Note: on page 13, Note: on page 14, Note: on page 15, Note: on page 15, Note: on page 17 and in the “Pin connections” diagram on the cover page |
| 23-Apr-2012 | 3 | Updated drawing Flat-20 on the cover page, added list of tables and figures, updated title of Table 4 and Table 5, reformatted Section 4: Package mechanical data and updated titles of Figure 2 to 8 and titles and headers of Table 6 to 12, updated data of Table 10 and Table 12, minor text corrections throughout document. |
| 23-May-2013 | 4 | Updated operating voltage in Features.<br>Updated Table 1: Device summary, Table 6, Table 7, Table 8, Table 9, Table 10, Table 11, Table 12, and Table 13: Ordering information.<br>Added Section 6: Other information |
| 09-Apr-2014 | 5 | Updated ceramic Flat-14 package in Figure 2 and Table 6<br>Specified MIL-STD-1835 for Flat 14 (Table 6), DIL 14 (Table 7), Flat 16 (Table 8), DIL 16 (Table 9) and DIL 20 (Table 11) packages<br>Removed “DSCC” from ceramic Flat-20 package (Figure 6 and Figure 10)<br>Replaced “ESCC” with “QML-V” in title of Table 14 |
| 18-Jan-2017 | 6 | Features: removed “Power-down input protection”<br>Table 1: Device summary: removed footnote 1 from 54AC521 and 54AC540, added footnote 2, and updated general note below table.<br>Table 2: Absolute maximum ratings - 54AC series: updated value of VI parameter.<br>Table 3: Absolute maximum ratings - 54ACT series: added footnote 1; updated values of VCC and VI parameters.<br>Section 4: Package information: updated layout of this section and removed superfluous information.<br>Table 13: Ordering information: updated marking of order code RHRAC164245K1, added footnote 2, and updated general note below table.<br>Table 14: Documentation provided for QML-V flight: updated documentation information for engineering model. |
| 13-Dec-2018 | 7 | Added: feature on the cover page, ESD parameter in Table 2: Absolute maximum ratings - 54AC series, Table 3: Absolute maximum ratings -<br>54ACT series and new Section 4: Radiations.<br>Updated: Description on the cover page, Table 13: Ordering information and Section 7: Other information. |
| 18-Apr-2019 | 8 | Updated Table 13: Ordering information. |
| 20-Nov-2019 | 9 | Updated Table 13: Ordering information. |
| 18-Nov-2020 | 10 | Updated features, Section 1 Input and output equivalent circuit diagram and Ordering information.<br>Removed "Maximum ratings" section. |
| 15-Sep-2021 | 11 | Updated Section 2 Radiations and Section 3 Ordering information. |
| 04-Oct-2021 | 12 | Updated Section 3 Ordering information. |
| 01-Aug-2025 | 13 | Updated features and description on the cover page, Section 5: Radiation, Section 7: Ordering information and Section 8: Other information.<br>Added: new sections Section 1: Device summary, Section 3: Maximum ratings and Section 8.1: Product marking. |

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