

Fact Sheet

Military Semiconductor Products

Advanced High-Speed CMOS Logic (AHC / AHCT)

SGYV014C – May 1998, Revision 4.0

Description

Advanced High-Speed CMOS Logic (AHC and AHCT) provide the HCMOS user an excellent migration path to upgrade their speed performance in low power / low noise / low drive applications. AHC devices are fully compatible with CMOS switching levels while AHCT devices are TTL switching level compatible. These technologies have been fully qualified per the requirements of MIL-PRF-38535 (QML).

Performance

- **Speed:** With typical propagation delays of 6.0ns (octals), roughly 3 times faster than HC, AHC is the quick and quiet solution for higher speed operation.
- **Low Noise:** AHC allows designers who like the low noise characteristics of HCMOS to design at today's performance levels without the overshoot/undershoot problems typical of higher drive devices usually required to achieve AHC speed levels.
- **Low Power:** AHC averages 40 μ A of static current, half that of HCMOS.
- **Drive:** Output current is ± 8 mA at 5.0V Vcc and ± 4 mA at 3.3V Vcc.
- **Technology:** EPIC™ - Enhanced-Performance Implanted CMOS process.
- **Latch-Up Immunity:** AHC and AHCT exceed 300mA per JEDEC Standard JESD-17.
- **Pricing:** AHC and AHCT are priced at parity with standard HC and HCT.

Packaging

| Package | Ceramic Dual In-Line (CDIP) [J suffix] | | | Ceramic Leadless Chip Carrier (LCCC) [FK suffix] | | | Ceramic Flat Package (CFP) [W suffix] | | |
|---------|---|--------|------------------|---|--------|------------------|--|--------|------------------|
| | Pins | Weight | R _{qJA} | R _{qJC} | Weight | R _{qJA} | R _{qJC} | Weight | R _{qJA} |
| 14 | 2.1 | 120 | 28 | (*) | (*) | (*) | 0.4 | 180 | 22 |
| 16 | 2.2 | 90 | 28 | (*) | (*) | (*) | 0.5 | 165 | 22 |
| 20 | 3.1 | 66 | 28 | 0.5 | 65 | 20 | 0.6 | 130 | 22 |

Weight.....Typical weight value given is in grams.

R_{qJA} Thermal resistance of a package without a path for heat dissipation. This is specified at a zero linear feet per minute air flow. Value given is in °C/W.

R_{qJC}..... Thermal resistance of a package assuming an infinite path for heat dissipation. Value given is in °C/W.

(*) The smallest LCCC available is a 20-pad package.

Applications

AHC and AHCT are well suited for communications and hand-held (battery powered) equipment such as man-pack radios, hand-held FLIRs, helmet-mounted displays, smart munitions and hand-held SAMs.

EPIC is a trademark of Texas Instruments.



Available Devices

| Device Name | DSCC SMD | Device Name | DSCC SMD |
|-------------------|-----------------------|--------------------|-----------------------|
| SNJ54AHC00J/W/FK | 5962-9682201QCA/DA/2A | SNJ54AHCT00J/W/FK | 5962-9682301QCA/DA/2A |
| SNJ54AHC02J/W/FK | 5962-9752801QCA/DA/2A | SNJ54AHCT02J/W/FK | 5962-9757101QCA/DA/2A |
| SNJ54AHC04J/W/FK | 5962-9680501QCA/DA/2A | SNJ54AHCT04J/W/FK | 5962-9680401QCA/DA/2A |
| SNJ54AHC08J/W/FK | 5962-9680301QCA/DA/2A | | |
| SNJ54AHC14J/W/FK | 5962-9682001QCA/DA/2A | SNJ54AHCT08J/W/FK | 5962-9682101QCA/DA/2A |
| SNJ54AHC32J/W/FK | 5962-9680201QCA/DA/2A | SNJ54AHCT14J/W/FK | 5962-9680101QCA/DA/2A |
| SNJ54AHC74J/W/FK | 5962-9682501QCA/DA/2A | SNJ54AHCT32J/W/FK | 5962-9682601QCA/DA/2A |
| SNJ54AHC86J/W/FK | 5962-9686001QCA/DA/2A | SNJ54AHCT74J/W/FK | 5962-9686101QCA/DA/2A |
| SNJ54AHC125J/W/FK | 5962-9681601QCA/DA/2A | SNJ54AHCT86J/W/FK | 5962-9681701QCA/DA/2A |
| SNJ54AHC126J/W/FK | 5962-9686801QCA/DA/2A | SNJ54AHCT125J/W/FK | 5962-9686901QCA/DA/2A |
| SNJ54AHC126J/W/FK | 5962-9686201QCA/DA/2A | SNJ54AHCT126J/W/FK | 5962-9686301QCA/DA/2A |
| SNJ54AHC138J/W/FK | 5962-9851601QEA/FA/2A | SNJ54AHCT138J/W/FK | 5962-9851701QEA/FA/2A |
| SNJ54AHC157J/W/FK | 5962-9764201QEA/FA/2A | | |
| SNJ54AHC240J/W/FK | 5962-9680701QRA/SA/2A | SNJ54AHCT240J/W/FK | 5962-9680601QRA/SA/2A |
| SNJ54AHC244J/W/FK | 5962-9678201QRA/SA/2A | SNJ54AHCT244J/W/FK | 5962-9678301QRA/SA/2A |
| SNJ54AHC245J/W/FK | 5962-9681801QRA/SA/2A | SNJ54AHCT245J/W/FK | 5962-9681901QRA/SA/2A |
| SNJ54AHC373J/W/FK | 5962-9686601QRA/SA/2A | SNJ54AHCT373J/W/FK | 5962-9686701QRA/SA/2A |
| SNJ54AHC374J/W/FK | 5962-9686401QRA/SA/2A | SNJ54AHCT374J/W/FK | 5962-9686501QRA/SA/2A |
| SNJ54AHC540J/W/FK | 5962-9685001QRA/SA/2A | SNJ54AHCT540J/W/FK | 5962-9685101QRA/SA/2A |
| SNJ54AHC541J/W/FK | 5962-9685701QRA/SA/2A | SNJ54AHCT541J/W/FK | 5962-9685801QRA/SA/2A |
| SNJ54AHC573J/W/FK | 5962-9685601QRA/SA/2A | SNJ54AHCT573J/W/FK | 5962-9685501QRA/SA/2A |
| SNJ54AHC574J/W/FK | 5962-9685401QRA/SA/2A | SNJ54AHCT574J/W/FK | 5962-9685301QRA/SA/2A |

Future Releases ‡

| Device Name | DSCC SMD | Device Name | DSCC SMD |
|--------------------|-----------------------|---------------------|----------|
| SNJ54AHC123AJ/W/FK | 5962-9860801QEA/FA/2A | SNJ54AHCT123AJ/W/FK | TBD |

‡ The functions outlined above are scheduled to be released by the second half of 1998. For information on function availability or new products, please contact an authorized TI Military Semiconductors Distributor, your local TI Field Sales Office or the TI Product Information Center (PIC).

Literature Information

1997 AHC/AHCT Logic Data Book — Literature Number SCLD003A

1997 SLL CD-ROM — Literature Number SCBC001A

Individual Data Sheets — Available from the TI Product Information Center at (972) 644-5580 or via TI's Internet Site (<http://www.ti.com/sc>)

Visit the TI Military Semiconductors home page at <http://www.ti.com/sc/docs/military/welcome.htm>

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