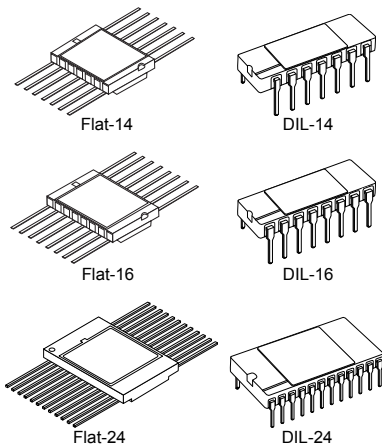


Rad-hard high speed 2 to 6 V CMOS logic series



The upper metallic lid is not electrically connected to any pins, nor to the IC die inside the package

Features

- ESCC qualified
- 7 V Absolute maximum ratings
- 2 V to 6 V operating voltage for CMOS M54HCxxx series
- 4.5 V to 5.5 V operating voltage for TTL M54HCTxxx series
- Hermetic packages
- Rad-hard 50 krad (Si) TID
- SEL immune up to 110 MeV.cm²/mg
- -55 °C to +125 °C temperature range
- ESCC specification available on ESCC website for each part

Description

The M54HCxxx and M54HCTxxx series is composed of 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 interface and several other functions. The radiation hardness, the single event latch-up (SEL) immunity and the housing in hermetic packages of all types of both series make them ideally suited for use in the most difficult environmental conditions.

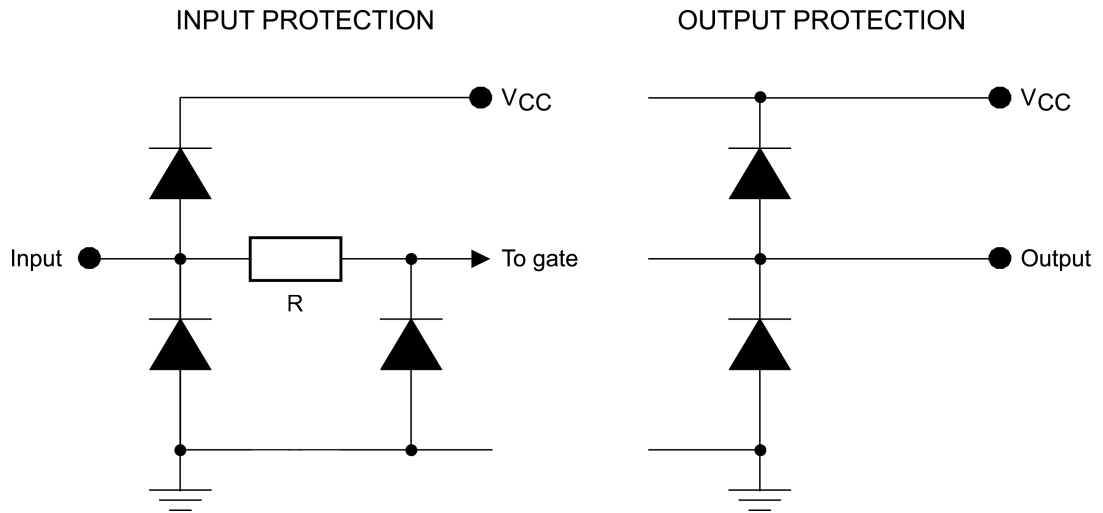
They are all qualified and tested over -55°C to +125°C ambient temperature range. The complete specification of each type is available from the ESCC web site: <https://escies.org> using its ESCC part number. STMicroelectronics® and guarantees full compliance of qualified parts with these ESCC specifications.

Product status link

[M54HCxxx, M54HCTxxx](#)

1 Input equivalent circuit diagram

Figure 1. Input and equivalent circuit diagram



Note: For the 54HC4049 and the 54HC4050 input equivalent circuit, there is no diode connected to V_{CC} .

2 Radiation data

Each wafer lot is qualified at 50 krad (Si) total dose as per ESCC 22900 specification at 210 rad/hour. The HC/HCT series is characterized under heavy ion on 4 functions representative of the whole series and qualified as per the results of this characterization. Detailed results are provided in [Table 1. Radiation data](#).

Table 1. Radiation data

Function	Result
Gate: 54HC08	SEL and SEU free for LET [111 MeV/mg/cm ²
Multiplexer 54HC157	SEL and SEU free for LET [111 MeV/mg/cm ²
Flip-flop 54HC273	SEL free for LET [111 MeV/mg/cm ²
	SEU: LET _{th} = 16 MeV/mg/cm ² , $\sigma_{sat} = 1.7 \times 10^{-4} \text{ cm}^2$
Counter 54HC4040	SEL free for LET [111 MeV/mg/cm ²
	SEU: LET _{th} = 34 MeV/mg/cm ² , $\sigma_{sat} = 4.2 \times 10^{-4} \text{ cm}^2$
Analog mux/demux 54HC4053	SEL free for LET [111 MeV/mg/cm ²
	SEU: LET _{th} = 7 MeV/mg/cm ² , $\sigma_{sat} = 2.4 \times 10^{-4} \text{ cm}^2$

3 Order codes

Table 2. Order codes

Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC00	Rad-hard quad 2-input NAND gate		M54HC00DG	920110503F	ESCC Flight	DIL14 FP	Gold	920110503F	2.20
			M54HC00DT	920110504F	ESCC Flight	DIL14 FP	Solder Dip	920110504F	2.20
			M54HC00K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC00K1	0.70
			M54HC00KG	920110501F	ESCC Flight	FLAT14 ESA FP	Gold	920110501F	0.70
			M54HC00KT	920110502F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920110502F	0.70
M54HC02	Rad-hard quad 2-input NOR gate		M54HC02DG	920111303F	ESCC Flight	DIL14 FP	Gold	920111303F	2.20
			M54HC02DT	920111304F	ESCC Flight	DIL14 FP	Solder Dip	920111304F	2.20
			M54HC02K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC02K1	0.70
			M54HC02KG	920111301F	ESCC Flight	FLAT14 ESA FP	Gold	920111301F	0.70
			M54HC02KT	920111302F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920111302F	0.70
M54HC03	Rad-hard quad 2-input NAND Open drain		M54HC03DG	920111403F	ESCC Flight	DIL14 FP	Gold	920111403F	2.20
			M54HC03DT	920111404F	ESCC Flight	DIL14 FP	Solder Dip	920111404F	2.20
			M54HC03K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC03K1	0.70
			M54HC03KG	920111401F	ESCC Flight	FLAT14 ESA FP	Gold	920111401F	0.70
			M54HC03KT	920111402F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920111402F	0.70
M54HC04	Rad-hard hex inverter		M54HC04DG	940103303F	ESCC Flight	DIL14 FP	Gold	940103303F	2.20
			M54HC04DT	940103304F	ESCC Flight	DIL14 FP	Solder Dip	940103304F	2.20
			M54HC04K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC04K1	0.70
			M54HC04KG	940103301F	ESCC Flight	FLAT14 ESA FP	Gold	940103301F	0.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC04	Rad-hard hex inverter		M54HC04KT	940103302F	ESCC Flight	FLAT14 ESA FP	Solder Dip	940103302F	0.70
M54HC08	Rad-hard quad 2-input AND gate		M54HC08DG	920110603F	ESCC Flight	DIL14 FP	Gold	920110603F	2.20
			M54HC08DT	920110604F	ESCC Flight	DIL14 FP	Solder Dip	920110604F	2.20
			M54HC08K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC08K1	0.70
			M54HC08KG	920110601F	ESCC Flight	FLAT14 ESA FP	Gold	920110601F	0.70
			M54HC08KT	920110602F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920110602F	0.70
M54HC10	Rad-hard triple 3-input NAND gate		M54HC10DG	920110703F	ESCC Flight	DIL14 FP	Gold	920110703F	2.20
			M54HC10DT	920110704F	ESCC Flight	DIL14 FP	Solder Dip	920110704F	2.20
			M54HC10K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC10K1	0.70
			M54HC10KG	920110701F	ESCC Flight	FLAT14 ESA FP	Gold	920110701F	0.70
			M54HC10KT	920110702F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920110702F	0.70
M54HC11	Rad-hard triple 3-input AND gate		M54HC11DG	920111703F	ESCC Flight	DIL14 FP	Gold	920111703F	2.20
			M54HC11DT	920111704F	ESCC Flight	DIL14 FP	Solder Dip	920111704F	2.20
			M54HC11K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC11K1	0.70
			M54HC11KG	920111701F	ESCC Flight	FLAT14 ESA FP	Gold	920111701F	0.70
			M54HC11KT	920111702F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920111702F	0.70
M54HC14	Rad-hard hex Schmitt inverter		M54HC14DG	940900703F	ESCC Flight	DIL14 FP	Gold	940900703F	2.20
			M54HC14DT	940900704F	ESCC Flight	DIL14 FP	Solder Dip	940900704F	2.20
			M54HC14K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC14K1	0.70
			M54HC14KG	940900701F	ESCC Flight	FLAT14 ESA FP	Gold	940900701F	0.70
			M54HC14KT	940900702F	ESCC Flight	FLAT14 ESA FP	Solder Dip	940900702F	0.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC21	Rad-hard dual 4-input AND gate		M54HC21DG	920110803F	ESCC Flight	DIL14 FP	Gold	920110803F	2.20
			M54HC21DT	920110804F	ESCC Flight	DIL14 FP	Solder Dip	920110804F	2.20
			M54HC21K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC21K1	0.70
			M54HC21KG	920110801F	ESCC Flight	FLAT14 ESA FP	Gold	920110801F	0.70
			M54HC21KT	920110802F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920110802F	0.70
M54HC27	Rad-hard triple 3-input NOR gate		M54HC27DG	920110903F	ESCC Flight	DIL14 FP	Gold	920110903F	2.20
			M54HC27DT	920110904F	ESCC Flight	DIL14 FP	Solder Dip	920110904F	2.20
			M54HC27KG	920110901F	ESCC Flight	FLAT14 ESA FP	Gold	920110901F	0.70
			M54HC27KT	920110902F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920110902F	0.70
M54HC30	Rad-hard 8-input NAND gate		M54HC30DG	920111003F	ESCC Flight	DIL14 FP	Gold	920111003F	2.20
			M54HC30DT	920111004F	ESCC Flight	DIL14 FP	Solder Dip	920111004F	2.20
			M54HC30KG	920111001F	ESCC Flight	FLAT14 ESA FP	Gold	920111001F	0.70
			M54HC30KT	920111002F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920111002F	0.70
M54HC32	Rad-hard quad 2-input OR gate		M54HC32DG	920111103F	ESCC Flight	DIL14 FP	Gold	920111103F	2.20
			M54HC32DT	920111104F	ESCC Flight	DIL14 FP	Solder Dip	920111104F	2.20
			M54HC32K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC32K1	0.70
			M54HC32KG	920111101F	ESCC Flight	FLAT14 ESA FP	Gold	920111101F	0.70
			M54HC32KT	920111102F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920111102F	0.70
M54HC74	Rad-hard dual D-type flip-flop with preset and clear	Positive edge	M54HC74DG	920305003F	ESCC Flight	DIL14 FP	Gold	920305003F	2.20
			M54HC74DT	920305004F	ESCC Flight	DIL14 FP	Solder Dip	920305004F	2.20
			M54HC74K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC74K1	0.70
			M54HC74KG	920305001F	ESCC Flight	FLAT14 ESA FP	Gold	920305001F	0.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC74	Rad-hard dual D-type flip-flop with preset and clear	Positive edge	M54HC74KT	920305002F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920305002F	0.70
M54HCT74	Rad-hard dual D-type flip-flop with preset and clear	Positive edge	M54HCT74DG	920307003F	ESCC Flight	DIL14 FP	Gold	920307003F	2.20
			M54HCT74DT	920307004F	ESCC Flight	DIL14 FP	Solder Dip	920307004F	2.20
			M54HCT74K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HCT74K1	0.70
			M54HCT74KG	920307001F	ESCC Flight	FLAT14 ESA FP	Gold	920307001F	0.70
			M54HCT74KT	920307002F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920307002F	0.70
M54HC85	Rad-hard 4-bit Magnitude comparator		M54HC85DG	920900410F	ESCC Flight	DIL16 FP	Gold	920900410F	2.20
			M54HC85DT	920900411F	ESCC Flight	DIL16 FP	Solder Dip	920900411F	2.20
			M54HC85K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC85K1	0.70
			M54HC85KG	920900401F	ESCC Flight	FLAT16 ESA FP	Gold	920900401F	0.70
			M54HC85KT	920900402F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920900402F	0.70
M54HC86	Rad-hard quad exclusive OR gate	Pinout 1	M54HC86DG	920111903F	ESCC Flight	DIL14 FP	Gold	920111903F	2.20
			M54HC86DT	920111904F	ESCC Flight	DIL14 FP	Solder Dip	920111904F	2.20
			M54HC86K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC86K1	0.70
			M54HC86KG	920111901F	ESCC Flight	FLAT14 ESA FP	Gold	920111901F	0.70
			M54HC86KT	920111902F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920111902F	0.70
M54HC109	Rad-hard dual J-K flip-flop with preset and clear	Positive edge	M54HC109DG	930604810F	ESCC Flight	DIL16 FP	Gold	930604810F	2.20
			M54HC109DT	930604811F	ESCC Flight	DIL16 FP	Solder Dip	930604811F	2.20
			M54HC109K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC109K1	0.70
			M54HC109KG	930604801F	ESCC Flight	FLAT16 ESA FP	Gold	930604801F	0.70
			M54HC109KT	930604802F	ESCC Flight	FLAT16 ESA FP	Solder Dip	930604802F	0.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC123	Rad-hard dual retriggerable monostable multivibrator with clear		M54HC123DG	920700610F	ESCC Flight	DIL16 FP	Gold	920700610F	2.20
			M54HC123DT	920700611F	ESCC Flight	DIL16 FP	Solder Dip	920700611F	2.20
			M54HC123K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC123K1	0.70
			M54HC123KG	920700601F	ESCC Flight	FLAT16 ESA FP	Gold	920700601F	0.70
			M54HC123KT	920700602F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920700602F	0.70
M54HC125	Rad-hard quad bus buffer 3-state	Inverted enables	M54HC125K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC125K1	0.70
			M54HC125KG	940103901F	ESCC Flight	FLAT14 ESA FP	Gold	940103901F	0.70
			M54HC125KT	940103902F	ESCC Flight	FLAT14 ESA FP	Solder Dip	940103902F	0.70
M54HC132	Rad-hard quad 2-input Schmitt NAND gate		M54HC132DG	920112003F	ESCC Flight	DIL14 FP	Gold	920112003F	2.20
			M54HC132DT	920112004F	ESCC Flight	DIL14 FP	Solder Dip	920112004F	2.20
			M54HC132K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC132K1	0.70
			M54HC132KG	920112001F	ESCC Flight	FLAT14 ESA FP	Gold	920112001F	0.70
			M54HC132KT	920112002F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920112002F	0.70
M54HC138	Rad-hard 3-to-8 line decoder inverter		M54HC138DG	940804610F	ESCC Flight	DIL16 FP	Gold	940804610F	2.20
			M54HC138DT	940804611F	ESCC Flight	DIL16 FP	Solder Dip	940804611F	2.20
			M54HC138K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC138K1	0.70
			M54HC138KG	940804601F	ESCC Flight	FLAT16 ESA FP	Gold	940804601F	0.70
			M54HC138KT	940804602F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940804602F	0.70
M54HC139	Rad-hard dual 2-to-4 line decoder / demultiplexer		M54HC139DG	920501710F	ESCC Flight	DIL16 FP	Gold	920501710F	2.20
			M54HC139DT	920501711F	ESCC Flight	DIL16 FP	Solder Dip	920501711F	2.20
			M54HC139K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC139K1	0.70
			M54HC139KG	920501701F	ESCC Flight	FLAT16 ESA FP	Gold	920501701F	0.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC139	Rad-hard dual 2-to-4 line decoder / demultiplexer		M54HC139KT	920501702F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920501702F	0.70
M54HC148	Rad-hard 8-to-3 line priority encoder		M54HC148DG	941001710F	ESCC Flight	DIL16 FP	Gold	941001710F	2.20
			M54HC148DT	941001711F	ESCC Flight	DIL16 FP	Solder Dip	941001711F	2.20
			M54HC148KG	941001701F	ESCC Flight	FLAT16 ESA FP	Gold	941001701F	0.70
			M54HC148KT	941001702F	ESCC Flight	FLAT16 ESA FP	Solder Dip	941001702F	0.70
M54HC151	Rad-hard 8-channel multiplexer		M54HC151DG	940805410F	ESCC Flight	DIL16 FP	Gold	940805410F	2.20
			M54HC151DT	940805411F	ESCC Flight	DIL16 FP	Solder Dip	940805411F	2.20
			M54HC151K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC151K1	0.70
			M54HC151KG	940805401F	ESCC Flight	FLAT16 ESA FP	Gold	940805401F	0.70
			M54HC151KT	940805402F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940805402F	0.70
M54HC153	Rad-hard dual 4-channel multiplexer		M54HC153DG	940803810F	ESCC Flight	DIL16 FP	Gold	940803810F	2.20
			M54HC153DT	940803811F	ESCC Flight	DIL16 FP	Solder Dip	940803811F	2.20
			M54HC153K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC153K1	0.70
			M54HC153KG	940803801F	ESCC Flight	FLAT16 ESA FP	Gold	940803801F	0.70
			M54HC153KT	940803802F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940803802F	0.70
M54HC154	Rad-hard 4-to-16 line decoder / demultiplexer		M54HC154DG	920502303F	ESCC Flight	DIL24 narrow FP	Gold	920502303F	5.20
			M54HC154DT	920502304F	ESCC Flight	DIL24 narrow FP	Solder Dip	920502304F	5.20
			M54HC154K1	-	Engineering Model	FLAT24 EM	Gold	M54HC154K1	1.70
			M54HC154KG	920502301F	ESCC Flight	FLAT24 FP	Gold	920502301F	1.70
			M54HC154KT	920502302F	ESCC Flight	FLAT24 FP	Solder Dip	920502302F	1.70
M54HC157	Rad-hard quad 2-channel multiplexer		M54HC157DG	940805710F	ESCC Flight	DIL16 FP	Gold	940805710F	2.20
			M54HC157DT	940805711F	ESCC Flight	DIL16 FP	Solder Dip	940805711F	2.20



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC157	Rad-hard quad 2-channel multiplexer		M54HC157K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC157K1	0.70
			M54HC157KG	940805701F	ESCC Flight	FLAT16 ESA FP	Gold	940805701F	0.70
			M54HC157KT	940805702F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940805702F	0.70
M54HC160	Rad-hard synchronous decade counter with async. clear		M54HC160DG	920406210F	ESCC Flight	DIL16 FP	Gold	920406210F	2.20
			M54HC160DT	920406211F	ESCC Flight	DIL16 FP	Solder Dip	920406211F	2.20
			M54HC160K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC160K1	2.20
			M54HC160KG	920406201F	ESCC Flight	FLAT16 ESA FP	Gold	920406201F	2.20
			M54HC160KT	920406202F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920406202F	2.20
M54HC161	Rad-hard synchronous binary counter with async. clear		M54HC161DG	920405910F	ESCC Flight	DIL16 FP	Gold	920405910F	2.20
			M54HC161DT	920405911F	ESCC Flight	DIL16 FP	Solder Dip	920405911F	2.20
			M54HC161K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC161K1	0.70
			M54HC161KG	920405901F	ESCC Flight	FLAT16 ESA FP	Gold	920405901F	0.70
			M54HC161KT	920405902F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920405902F	0.70
M54HC164	Rad-hard 8-bit SIPO shift register		M54HC164DG	930604103F	ESCC Flight	DIL14 FP	Gold	930604103F	2.20
			M54HC164DT	930604104F	ESCC Flight	DIL14 FP	Solder Dip	930604104F	2.20
			M54HC164K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC164K1	0.70
			M54HC164KG	930604101F	ESCC Flight	FLAT14 ESA FP	Gold	930604101F	0.70
			M54HC164KT	930604102F	ESCC Flight	FLAT14 ESA FP	Solder Dip	930604102F	0.70
M54HC165	Rad-hard 8-bit PISO shift register		M54HC165DG	930604210F	ESCC Flight	DIL16 FP	Gold	930604210F	2.20
			M54HC165DT	930604211F	ESCC Flight	DIL16 FP	Solder Dip	930604211F	2.20
			M54HC165K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC165K1	0.70
			M54HC165KG	930604201F	ESCC Flight	FLAT16 ESA FP	Gold	930604201F	0.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC165	Rad-hard 8-bit PISO shift register		M54HC165KT	930604202F	ESCC Flight	FLAT16 ESA FP	Solder Dip	930604202F	0.70
M54HC166	Rad-hard 8-bit PISO shift register with clear		M54HC166DG	930604310F	ESCC Flight	DIL16 FP	Gold	930604310F	2.20
			M54HC166DT	930604311F	ESCC Flight	DIL16 FP	Solder Dip	930604311F	2.20
			M54HC166K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC166K1	0.70
			M54HC166KG	930604301F	ESCC Flight	FLAT16 ESA FP	Gold	930604301F	0.70
			M54HC166KT	930604302F	ESCC Flight	FLAT16 ESA FP	Solder Dip	930604302F	0.70
M54HC174	Rad-hard hex D-type flip-flop with clear		M54HC174DG	930605210F	ESCC Flight	DIL16 FP	Gold	930605210F	2.20
			M54HC174DT	930605211F	ESCC Flight	DIL16 FP	Solder Dip	930605211F	2.20
			M54HC174K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC174K1	0.70
			M54HC174KG	930605201F	ESCC Flight	FLAT16 ESA FP	Gold	930605201F	0.70
			M54HC174KT	930605202F	ESCC Flight	FLAT16 ESA FP	Solder Dip	930605202F	0.70
M54HC175	Rad-hard quad D-type flip-flop with clear		M54HC175DG	920305210F	ESCC Flight	DIL16 FP	Gold	920305210F	2.20
			M54HC175DT	920305211F	ESCC Flight	DIL16 FP	Solder Dip	920305211F	2.20
			M54HC175K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC175K1	0.70
			M54HC175KG	920305201F	ESCC Flight	FLAT16 ESA FP	Gold	920305201F	0.70
			M54HC175KT	920305202F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920305202F	0.70
M54HC191	Rad-hard 4-bit synchronous binary up / down counter		M54HC191DG	920406610F	ESCC Flight	DIL16 FP	Gold	920406610F	2.20
			M54HC191DT	920406611F	ESCC Flight	DIL16 FP	Solder Dip	920406611F	2.20
			M54HC191K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC191K1	0.70
			M54HC191KG	920406601F	ESCC Flight	FLAT16 ESA FP	Gold	920406601F	0.70
			M54HC191KT	920406602F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920406602F	0.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC193	Rad-hard synchronous up / down binary counter		M54HC193DG	920406510F	ESCC Flight	DIL16 FP	Gold	920406510F	2.20
			M54HC193DT	920406511F	ESCC Flight	DIL16 FP	Solder Dip	920406511F	2.20
			M54HC193K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC193K1	0.70
			M54HC193KG	920406501F	ESCC Flight	FLAT16 ESA FP	Gold	920406501F	0.70
			M54HC193KT	920406502F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920406502F	0.70
M54HC237	Rad-hard 3-to-8 line decoder latch		M54HC237DG	920502110F	ESCC Flight	DIL16 FP	Gold	920502110F	2.20
			M54HC237DT	920502111F	ESCC Flight	DIL16 FP	Solder Dip	920502111F	2.20
			M54HC237K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC237K1	0.90
			M54HC237KG	920502101F	ESCC Flight	FLAT16 ESA FP	Gold	920502101F	0.90
			M54HC237KT	920502102F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920502102F	0.90
M54HC240	Rad-hard octal bus buffer 3-state inverter	Independent enables	M54HC240DG	940103403F	ESCC Flight	DIL20 FP	Gold	940103403F	3.20
			M54HC240DT	940103404F	ESCC Flight	DIL20 FP	Solder Dip	940103404F	3.20
			M54HC240K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC240K1	0.90
			M54HC240KG	940103401F	ESCC Flight	FLAT20 ESA FP	Gold	940103401F	0.90
			M54HC240KT	940103402F	ESCC Flight	FLAT20 ESA FP	Solder Dip	940103402F	0.90
M54HC244	Rad-hard octal bus buffer 3-state	Independent enables	M54HC244DG	940104803F	ESCC Flight	DIL20 FP	Gold	940104803F	3.20
			M54HC244DT	940104804F	ESCC Flight	DIL20 FP	Solder Dip	940104804F	3.20
			M54HC244K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC244K1	0.90
			M54HC244KG	940104801F	ESCC Flight	FLAT20 ESA FP	Gold	940104801F	0.90
			M54HC244KT	940104802F	ESCC Flight	FLAT20 ESA FP	Solder Dip	940104802F	0.90
M54HCT244	Rad-hard octal bus buffer 3-state	Independent enables	M54HCT244DG	940200903F	ESCC Flight	DIL20 FP	Gold	940200903F	3.20
			M54HCT244DT	940200904F	ESCC Flight	DIL20 FP	Solder Dip	940200904F	3.20



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HCT244	Rad-hard octal bus buffer 3-state	Independent enables	M54HCT244K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HCT244K1	0.90
			M54HCT244KG	940200901F	ESCC Flight	FLAT20 ESA FP	Gold	940200901F	0.90
			M54HCT244KT	940200902F	ESCC Flight	FLAT20 ESA FP	Solder Dip	940200902F	0.90
M54HC245	Rad-hard octal bus transceiver 3-state		M54HC245DG	940501303F	ESCC Flight	DIL20 FP	Gold	940501303F	3.20
			M54HC245DT	940501304F	ESCC Flight	DIL20 FP	Solder Dip	940501304F	3.20
			M54HC245K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC245K1	0.90
			M54HC245KG	940501301F	ESCC Flight	FLAT20 ESA FP	Gold	940501301F	0.90
			M54HC245KT	940501302F	ESCC Flight	FLAT20 ESA FP	Solder Dip	940501302F	0.90
M54HCT245	Rad-hard octal bus transceiver 3-state		M54HCT245DG	940501403F	ESCC Flight	DIL20 FP	Gold	940501403F	3.20
			M54HCT245DT	940501404F	ESCC Flight	DIL20 FP	Solder Dip	940501404F	3.20
			M54HCT245K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HCT245K1	0.90
			M54HCT245KG	940501401F	ESCC Flight	FLAT20 ESA FP	Gold	940501401F	0.90
			M54HCT245KT	940501402F	ESCC Flight	FLAT20 ESA FP	Solder Dip	940501402F	0.90
M54HC251	Rad-hard 8-channel multiplexer 3-state		M54HC251DG	940804810F	ESCC Flight	DIL16 FP	Gold	940804810F	2.20
			M54HC251DT	940804811F	ESCC Flight	DIL16 FP	Solder Dip	940804811F	2.20
			M54HC251K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC251K1	0.70
			M54HC251KG	940804801F	ESCC Flight	FLAT16 ESA FP	Gold	940804801F	0.70
			M54HC251KT	940804802F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940804802F	0.70
M54HC257	Rad-hard quad 2-channel multiplexer 3-state		M54HC257KG	940804701F	ESCC Flight	FLAT16 ESA FP	Gold	940804701F	0.70
			M54HC257KT	940804702F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940804702F	0.70
M54HC259	Rad-hard 8-bit Adressable latch		M54HC259DT	920307311F	ESCC Flight	DIL16 FP	Solder Dip	920307311F	2.20



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC259	Rad-hard 8-bit Adressable latch		M54HC259K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC259K1	0.70
			M54HC259KG	920307301F	ESCC Flight	FLAT16 ESA FP	Gold	920307301F	0.70
			M54HC259KT	920307302F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920307302F	0.70
M54HC273	Rad-hard octal D-type flip-flop with clear		M54HC273DG	920305303F	ESCC Flight	DIL20 FP	Gold	920305303F	3.20
			M54HC273DT	920305304F	ESCC Flight	DIL20 FP	Solder Dip	920305304F	3.20
			M54HC273K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC273K1	0.90
			M54HC273KG	920305301F	ESCC Flight	FLAT20 ESA FP	Gold	920305301F	0.90
			M54HC273KT	920305302F	ESCC Flight	FLAT20 ESA FP	Solder Dip	920305302F	0.90
M54HC283	Rad-hard 4-bit binary Full adder		M54HC283DG	920207510F	ESCC Flight	DIL16 FP	Gold	920207510F	2.20
			M54HC283DT	920207511F	ESCC Flight	DIL16 FP	Solder Dip	920207511F	2.20
			M54HC283KG	920207501F	ESCC Flight	FLAT16 ESA FP	Gold	920207501F	0.70
			M54HC283KT	920207502F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920207502F	0.70
M54HC373	Rad-hard octal D-type latch 3-state		M54HC373DG	920305903F	ESCC Flight	DIL20 FP	Gold	920305903F	3.20
			M54HC373DT	920305904F	ESCC Flight	DIL20 FP	Solder Dip	920305904F	3.20
			M54HC373K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC373K1	0.90
			M54HC373KG	920305901F	ESCC Flight	FLAT20 ESA FP	Gold	920305901F	0.90
			M54HC373KT	920305902F	ESCC Flight	FLAT20 ESA FP	Solder Dip	920305902F	0.90
M54HC374	Rad-hard octal D-type flip-flop 3-state		M54HC374DG	920306003F	ESCC Flight	DIL20 FP	Gold	920306003F	3.20
			M54HC374DT	920306004F	ESCC Flight	DIL20 FP	Solder Dip	920306004F	3.20
			M54HC374KG	920306001F	ESCC Flight	FLAT20 ESA FP	Gold	920306001F	0.90
			M54HC374KT	920306002F	ESCC Flight	FLAT20 ESA FP	Solder Dip	920306002F	0.90
M54HC393	Rad-hard dual binary counter		M54HC393DG	920407403F	ESCC Flight	DIL14 FP	Gold	920407403F	2.20



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC393	Rad-hard dual binary counter		M54HC393DT	920407404F	ESCC Flight	DIL14 FP	Solder Dip	920407404F	2.20
			M54HC393K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC393K1	0.70
			M54HC393KG	920407401F	ESCC Flight	FLAT14 ESA FP	Gold	920407401F	0.70
			M54HC393KT	920407402F	ESCC Flight	FLAT14 ESA FP	Solder Dip	920407402F	0.70
M54HC540	Rad-hard octal bus buffer 3-state inverter		M54HC540DG	940104903F	ESCC Flight	DIL20 FP	Gold	940104903F	3.20
			M54HC540DT	940104904F	ESCC Flight	DIL20 FP	Solder Dip	940104904F	3.20
			M54HC540K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC540K1	0.90
			M54HC540KG	940104901F	ESCC Flight	FLAT20 ESA FP	Gold	940104901F	0.90
			M54HC540KT	940104902F	ESCC Flight	FLAT20 ESA FP	Solder Dip	940104902F	0.90
M54HC541	Rad-hard octal bus buffer 3-state	Non inverted enables	M54HC541DG	940104703F	ESCC Flight	DIL20 FP	Gold	940104703F	3.20
			M54HC541DT	940104704F	ESCC Flight	DIL20 FP	Solder Dip	940104704F	3.20
			M54HC541K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC541K1	0.90
			M54HC541KG	940104701F	ESCC Flight	FLAT20 ESA FP	Gold	940104701F	0.90
			M54HC541KT	940104702F	ESCC Flight	FLAT20 ESA FP	Solder Dip	940104702F	0.90
M54HC573	Rad-hard octal D-type latch 3-state	Through chip pinout	M54HC573DG	920207203F	ESCC Flight	DIL20 FP	Gold	920207203F	3.20
			M54HC573DT	920207204F	ESCC Flight	DIL20 FP	Solder Dip	920207204F	3.20
			M54HC573K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC573K1	0.90
			M54HC573KG	920207201F	ESCC Flight	FLAT20 ESA FP	Gold	920207201F	0.90
			M54HC573KT	920207202F	ESCC Flight	FLAT20 ESA FP	Solder Dip	920207202F	0.90
M54HC574	Rad-hard octal D-type flip-flop 3-state	Through chip pinout	M54HC574DG	920305403F	ESCC Flight	DIL20 FP	Gold	920305403F	3.20
			M54HC574DT	920305404F	ESCC Flight	DIL20 FP	Solder Dip	920305404F	3.20
			M54HC574K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC574K1	0.90



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC574	Rad-hard octal D-type flip-flop 3-state	Through chip pinout	M54HC574KG	920305401F	ESCC Flight	FLAT20 ESA FP	Gold	920305401F	0.90
			M54HC574KT	920305402F	ESCC Flight	FLAT20 ESA FP	Solder Dip	920305402F	0.90
M54HC595	Rad-hard 8 bit shift register output latch 3-state		M54HC595DG	930605110F	ESCC Flight	DIL16 FP	Gold	930605110F	2.20
			M54HC595DT	930605111F	ESCC Flight	DIL16 FP	Solder Dip	930605111F	2.20
			M54HC595K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC595K1	0.70
			M54HC595KG	930605101F	ESCC Flight	FLAT16 ESA FP	Gold	930605101F	0.70
			M54HC595KT	930605102F	ESCC Flight	FLAT16 ESA FP	Solder Dip	930605102F	0.70
M54HC597	Rad-hard 8 bit latch/shift register		M54HC597DG	930605410F	ESCC Flight	DIL16 FP	Gold	930605410F	2.20
			M54HC597DT	930605411F	ESCC Flight	DIL16 FP	Solder Dip	930605411F	2.20
			M54HC597K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC597K1	0.70
			M54HC597KG	930605401F	ESCC Flight	FLAT16 ESA FP	Gold	930605401F	0.70
			M54HC597KT	930605402F	ESCC Flight	FLAT16 ESA FP	Solder Dip	930605402F	0.70
M54HC688	Rad-hard 8 bit Equality comparator		M54HC688DG	920900503F	ESCC Flight	DIL20 FP	Gold	920900503F	3.20
			M54HC688DT	920900504F	ESCC Flight	DIL20 FP	Solder Dip	920900504F	3.20
			M54HC688K1	-	Engineering Model	FLAT20 ESA EM	Gold	M54HC688K1	0.90
			M54HC688KG	920900501F	ESCC Flight	FLAT20 ESA FP	Gold	920900501F	0.90
			M54HC688KT	920900502F	ESCC Flight	FLAT20 ESA FP	Solder Dip	920900502F	0.90
M54HC4020	Rad-hard 14-stage binary counter		M54HC4020DG	920407010F	ESCC Flight	DIL16 FP	Gold	920407010F	2.20
			M54HC4020DT	920407011F	ESCC Flight	DIL16 FP	Solder Dip	920407011F	2.20
			M54HC4020K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC4020K1	0.70
			M54HC4020KG	920407001F	ESCC Flight	FLAT16 ESA FP	Gold	920407001F	0.70
			M54HC4020KT	920407002F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920407002F	0.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC4040	Rad-hard 12-stage binary counter		M54HC4040DG	920406910F	ESCC Flight	DIL16 FP	Gold	920406910F	2.20
			M54HC4040DT	920406911F	ESCC Flight	DIL16 FP	Solder Dip	920406911F	2.20
			M54HC4040K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC4040K1	0.70
			M54HC4040KG	920406901F	ESCC Flight	FLAT16 ESA FP	Gold	920406901F	0.70
			M54HC4040KT	920406902F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920406902F	0.70
M54HC4049	Rad-hard hex buffer / converter inverter		M54HC4049DG	940103710F	ESCC Flight	DIL16 FP	Gold	940103710F	2.20
			M54HC4049DT	940103711F	ESCC Flight	DIL16 FP	Solder Dip	940103711F	2.20
			M54HC4049K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC4049K1	0.70
			M54HC4049KG	940103701F	ESCC Flight	FLAT16 ESA FP	Gold	940103701F	0.70
			M54HC4049KT	940103702F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940103702F	0.70
M54HC4050	Rad-hard hex buffer / converter		M54HC4050DG	940103810F	ESCC Flight	DIL16 FP	Gold	940103810F	2.20
			M54HC4050DT	940103811F	ESCC Flight	DIL16 FP	Solder Dip	940103811F	2.20
			M54HC4050K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC4050K1	0.70
			M54HC4050KG	940103801F	ESCC Flight	FLAT16 ESA FP	Gold	940103801F	0.70
			M54HC4050KT	940103802F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940103802F	0.70
M54HC4051	Rad-hard single 8-channel analog mux / demux		M54HC4051DG	940806410F	ESCC Flight	DIL16 FP	Gold	940806410F	2.20
			M54HC4051DT	940806411F	ESCC Flight	DIL16 FP	Solder Dip	940806411F	2.20
			M54HC4051K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC4051K1	0.70
			M54HC4051KG	940806401F	ESCC Flight	FLAT16 ESA FP	Gold	940806401F	0.70
			M54HC4051KT	940806402F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940806402F	0.70
M54HC4053	Rad-hard triple 2-channel analog mux / demux		M54HC4053DG	940806510F	ESCC Flight	DIL16 FP	Gold	940806510F	2.20
			M54HC4053DT	940806511F	ESCC Flight	DIL16 FP	Solder Dip	940806511F	2.20



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC4053	Rad-hard triple 2-channel analog mux / demux		M54HC4053K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC4053K1	0.70
			M54HC4053KG	940806501F	ESCC Flight	FLAT16 ESA FP	Gold	940806501F	0.70
			M54HC4053KT	940806502F	ESCC Flight	FLAT16 ESA FP	Solder Dip	940806502F	0.70
M54HC4060	Rad-hard 14-stage binary counter / oscillator		M54HC4060DG	920407610F	ESCC Flight	DIL16 FP	Gold	920407610F	2.20
			M54HC4060DT	920407611F	ESCC Flight	DIL16 FP	Solder Dip	920407611F	2.20
			M54HC4060K1	-	Engineering Model	FLAT16 ESA EM	Gold	M54HC4060K1	0.70
			M54HC4060KG	920407601F	ESCC Flight	FLAT16 ESA FP	Gold	920407601F	0.70
			M54HC4060KT	920407602F	ESCC Flight	FLAT16 ESA FP	Solder Dip	920407602F	0.70
M54HC4066	Rad-hard quad bilateral switch		M54HC4066DG	940805203F	ESCC Flight	DIL14 FP	Gold	940805203F	2.20
			M54HC4066DT	940805204F	ESCC Flight	DIL14 FP	Solder Dip	940805204F	2.20
			M54HC4066K1	-	Engineering Model	FLAT14 ESA EM	Gold	M54HC4066K1	0.70
			M54HC4066KG	940805201F	ESCC Flight	FLAT14 ESA FP	Gold	940805201F	0.70
			M54HC4066KT	940805202F	ESCC Flight	FLAT14 ESA FP	Solder Dip	940805202F	0.70
M54HC4094	Rad-hard 8-bit SIPO shift register 3-state		M54HC4094DG	930605010F	ESCC Flight	DIL16 FP	Gold	930605010F	2.20
			M54HC4094DT	930605011F	ESCC Flight	DIL16 FP	Solder Dip	930605011F	2.20
			M54HC4094K1	-	Engineering Model	FLAT16 ESA FP	Gold	M54HC4094K1	0.70
			M54HC4094KG	930605001F	ESCC Flight	FLAT16 ESA FP	Gold	930605001F	0.70
			M54HC4094KT	930605002F	ESCC Flight	FLAT16 ESA FP	Solder Dip	930605002F	0.70
M54HC4514	Rad-hard 4-to-16 line decoder latch		M54HC4514DG	920501903F	ESCC Flight	DIL24 narrow FP	Gold	920501903F	5.20
			M54HC4514DT	920501904F	ESCC Flight	DIL24 narrow FP	Solder Dip	920501904F	5.20
			M54HC4514K1	-	Engineering Model	FLAT24 EM	Gold	M54HC4514K1	1.70



Product name	Description	Other features	Commercial product ⁽¹⁾	ESCC specification	Quality level	Package ⁽²⁾	Lead finish	Marking ⁽³⁾	Mass (g)
M54HC4514	Rad-hard 4-to-16 line decoder latch		M54HC4514KG	920501901F	ESCC Flight	FLAT24 FP	Gold	920501901F	1.70
			M54HC4514KT	920501902F	ESCC Flight	FLAT24 FP	Solder Dip	920501902F	1.70

1. The complete specification of each type(including information about packages) is available from the ESCC web site: <https://escies.org> using its ESCC part number.
2. The upper metallic lid is not electrically connected to any pins, nor to the IC die inside the package.
3. Specific marking only. Complete marking includes the following: ST logo; ESA logo; date code; ESCC.



4 Other information

Date code:

The date code is structured as engineering model: EM xyywwz

x = 3 (EM only), assembly location Rennes (France), yy = last two digits of the year, ww = week digits and z = lot index of the week.

Product documentation

In the table below a summary of the documentation provided with each type of products.

Table 3. Product documentation

Quality level	Documentation
Engineering model	-
ESCC Flight	Certificate of Conformance Radiation verification test report

Revision history

Table 4. Document revision history

Date	Version	Changes
14-Apr-2010	1	Initial release.
02-Aug-2011	2	Added Note: on page 14, 1. on page 14, 1. on page 15, 1. on page 16, 1. on page 19, 1. on page 20 and in the "Pin connections" diagram on the coverpage
29-May-2013	3	<p>Updated Flat-24 package in figure on page 1.</p> <p>Updated Section 2: Input and output equivalent circuit diagram (updated titles - added "output", updated Figure 1, added note 1. below Figure 1).</p> <p>Updated Table 1 (removed M54HCU04, M54HC163, M54HC238, M54HC241, M54HC253, M54HC365, M54HCT374, M54HC390, M54HC4002, M54HC4072, and M54HC4075 device).</p> <p>Updated note 1. below Table 1 (removed "QML-Q versions").</p> <p>Added note 2. below Table 3, renumbered notes below Table 3.</p> <p>Added tr,tf symbols, parameters, values and units to Table 4.</p> <p>Updated Section 5: Package information (added Figure 6 and Figure 7, Table 11 and Table 12, reversed order of Figure 2 to Figure 5, Figure 8 and Figure 9, Table 8 to Table 10, Table 13 and Table 14, corrected typ. dimension for symbol "L" in Table 9).</p> <p>Updated Table 15 (removed M54HCU04K/D, M54HC163K/D, M54HC238K/D, M54HC241K/D, M54HC253K/D, M54HC365K/D, M54HCT374K/D, M54HC390K/D, M54HC4002K/D, M54HC4072K/D, and M54HC4075K/D device).</p> <p>Added note 2. below Table 15, updated note 1. (removed "QML-Q versions"), renumbered notes below Table 15.</p> <p>Added Section 7: Other information.</p> <p>Minor corrections throughout document.</p>
01-Apr-2014	4	Table 15: Ordering information: All order codes changed to the new ST ordering code scheme, updated footnote 2.
05-Nov-2020	5	<p>Updated cover page.</p> <p>Removed "Device summary" and "Maximum ratings" sections.</p> <p>Updated Order codes and Section 4 Other information.</p>

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