

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

Data brief

Features

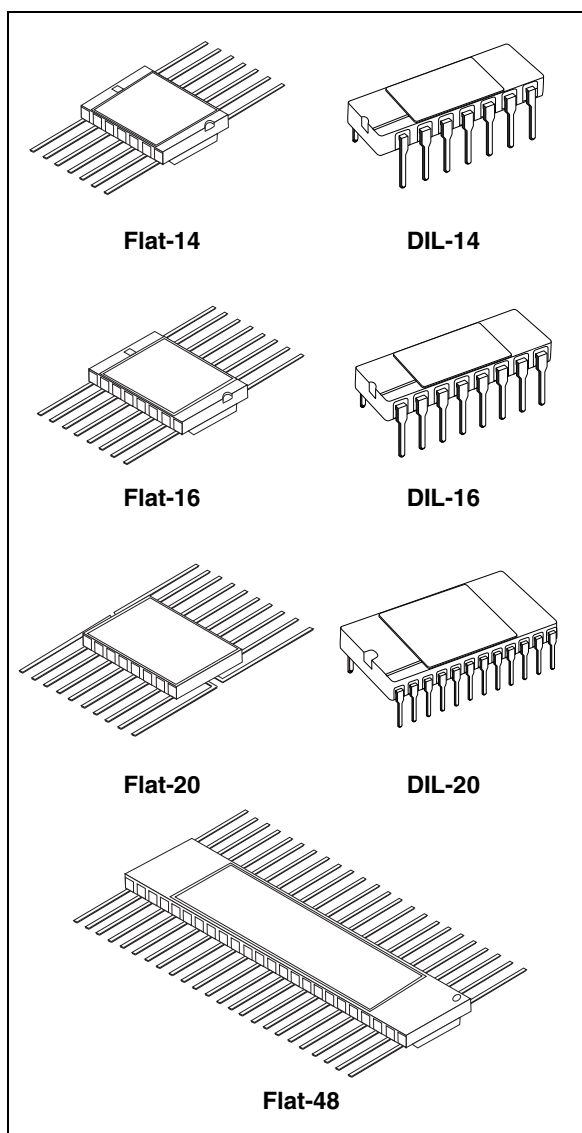
- 2 to 6 V operating voltage
- High speed $T_{PD} = 4.5$ ns (typ)
- Low DC power dissipation: 8 μ A max
- Symmetrical 24 mA outputs characteristics
- High noise immunity: 28% of min V_{CC}
- Power-down input protection
- Balanced propagation delays
- Improved electrical latch-up immunity
- Controlled rise and fall times
- Operating temperature: -55 to 150 °C
- Hermetic packages
- Rad-hard: 300 kRad TID at any Mil1019 dose rates
- SEL immune to 110 MeV/cm²/mg LET ions
- RHA QML-V qualified
- Same die and electrical specification for engineering and flight models

Description

The 54AC and 54ACT series represent over 60 product types with different 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.

Their radiation hardness, immunity from single-event latch-up (SEL) and single-event upset (SEU), and housing in hermetic packages make them suitable for the most difficult environmental conditions

The complete specification for each type is available from the DSCC web site: www.dsccl.dla.mil. ST guarantees full compliance of qualified parts with these DSCC specifications.



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1 54AC and 54ACT series overview

Table 1. Device summary

Part number	Description	Radiation level	Agency qualification	EPPL	SMD / detailed specification	Package	Other features
54AC00	Rad-hard quad 2-input NAND gate	300krad (Si)	QML-V	Y	5962F87549	Flat-14 - DIL-14	-
54ACT00	Rad-hard quad 2-Input NAND gate			Y	5962F87699	Flat-14 - DIL-14	
54AC02	Rad-hard quad 2-Input NOR gate			Y	5962F87612	Flat-14 - DIL-14	
54ACT02	Rad-hard quad 2-Input NOR gate			-	5962F89791	Flat-14 - DIL-14	
54AC04	Rad-hard hex inverter			Y	5962F87609	Flat-14 - DIL-14	
54ACT04	Rad-hard hex inverter			-	5962F89734	Flat-14 - DIL-14	
54AC08	Rad-hard quad 2-input AND gate			Y	5962F87615	Flat-14 - DIL-14	
54ACT08	Rad-hard quad 2-input AND gate			-	5962F89547	Flat-14 - DIL-14	
54AC10	Rad-hard triple 3-input NAND gate			Y	5962F87610	Flat-14 - DIL-14	
54ACT10	Rad-hard triple 3-input NAND gate			-	5962F92182	Flat-14 - DIL-14	
54AC11	Rad-hard triple 3-input AND gate			Y	5962F87611	Flat-14 - DIL-14	
54ACT11	Rad-hard triple 3-input AND gate			-	5962F90772	Flat-14 - DIL-14	
54AC14	Rad-hard hex Schmitt inverter			Y	5962F87624	Flat-14 - DIL-14	
54ACT14	Rad-hard hex Schmitt inverter			-	5962F96813	Flat-14 - DIL-14	
54AC32	Rad-hard quad 2-input OR gate			-	5962F87614	Flat-14 - DIL-14	
54ACT32	Rad-hard quad 2-input OR gate			-	5962F89736	Flat-14 - DIL-14	
54AC74	Rad-hard dual D-type Flip-Flop with preset & clear			Y	5962F88520	Flat-14 - DIL-14	
54ACT74	Rad-hard dual D-type Flip-Flop with preset & clear			-	5962F87525	Flat-14 - DIL-14	
54AC86	Rad-hard quad exclusive OR			-	5962F89550	Flat-14 - DIL-14	
54ACT86	Rad-hard quad exclusive OR			Y	5962F90687	Flat-14 - DIL-14	

**Table 1. Device summary (continued)**

Part number	Description	Radiation level	Agency qualification	EPPL	SMD / detailed specification	Package	Other features	
54AC138	Rad-hard 3 to 8 line decoder inverter	300krad (Si)	QML-V	Y	5962F87622	Flat-16 - DIL-16		
54ACT138	Rad-hard 3 to 8 line decoder inverter			-	5962F87554	Flat-16 - DIL-16		
54AC139	Rad-hard dual 2 to 4 line decoder/demultiplexer			Y	5962F87623	Flat-16 - DIL-16		
54ACT139	Rad-hard dual 2 to 4 line decoder/demultiplexer			-	5962F87553	Flat-16 - DIL-16		
54AC151	Rad-hard 8-channel multiplexer			-	5962F87691	Flat-16 - DIL-16		
54ACT151	Rad-hard 8-channel multiplexer			-	5962F88756	Flat-16 - DIL-16		
54AC157	Rad-hard quad 2-channel multiplexer			Y	5962F89539	Flat-16 - DIL-16		
54ACT157	Rad-hard quad 2-channel multiplexer			-	5962F89668	Flat-16 - DIL-16		
54AC161	Rad-hard synchronous binary counter with async. clear			Y	5962F89561	Flat-16 - DIL-16		
54ACT161	Rad-hard synchronous binary counter with async. clear			-	5962F91722	Flat-16 - DIL-16		
54AC174	Rad-hard hex D-type Flip-Flop with clear			-	5962F87626	Flat-16 - DIL-16		
54ACT174	Rad-hard hex D-type Flip-Flop with clear			-	5962F87757	Flat-16 - DIL-16		
54AC191	Rad-hard 4 bit synchronous binary up/down counter			-	5962F89749	Flat-16 - DIL-16		
54ACT191	Rad-hard 4 bit synchronous binary up/down counter			-	5962F04228	Flat-16 - DIL-16		
54AC240	Rad-hard octal bus buffer 3-state inverter			Y	5962F87550	Flat-20		
54ACT240	Rad-hard octal bus buffer 3-state inverter			Y	5962F87759	Flat-20		
54AC244	Rad-hard octal bus buffer 3-state			Y	5962F87552	Flat-20		Inverted enable
54ACT244	Rad-hard octal bus buffer 3-state			Y	5962F87760	Flat-20		
54AC245	Rad-hard octal bus transceiver 3-state			Y	5962F87758	Flat-20		
54ACT245	Rad-hard octal bus transceiver 3-state			Y	5962F87663	Flat-20		
54AC273	Rad-hard octal D-type Flip-Flop with clear	Y	5962F87756	Flat-20				
54ACT273	Rad-hard octal D-type Flip-Flop with clear	-	5962F01527	Flat-20				

**Table 1. Device summary (continued)**

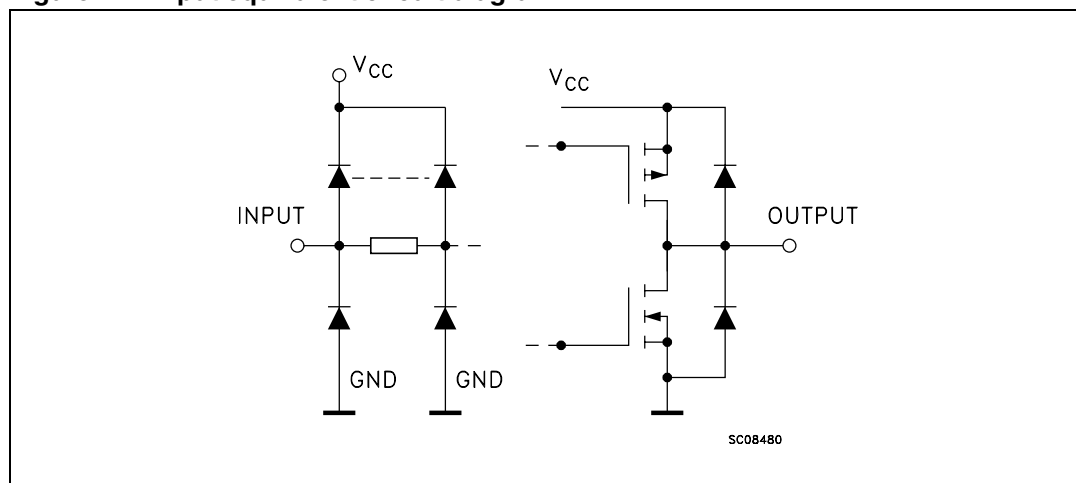
Part number	Description	Radiation level	Agency qualification	EPPL	SMD / detailed specification	Package	Other features
54AC373	Rad-hard octal D-type latch 3-state	300krad (Si)	QML-V	Y	5962F87555	Flat-20	
54ACT373	Rad-hard octal D-type latch 3-state			-	5962F87556	Flat-20	
54AC374	Rad-hard octal D-type Flip-Flop 3-state			Y	5962F87694	Flat-20	
54ACT374	Rad-hard octal D-type Flip-Flop 3-state			-	5962F87631	Flat-20	
54AC521 ⁽¹⁾	Rad-hard 8-bit comparator with enable			-	5962F87695	Flat-20	
54AC540 ⁽¹⁾	Rad-hard octal buffer/line driver 3-state			-	5962F90985	Flat-20	
54AC541	Rad-hard octal bus buffer 3-state			Y	5962F88706	Flat-20	Non inverted enable
54ACT541	Rad-hard octal bus buffer 3-state			-	5962F89795	Flat-20	
54AC574	Rad-hard octal D-type Flip-Flop 3-state			-	5962F96773	Flat-20	
54ACT574	Rad-hard octal D-type Flip-Flop 3-state			Y	5962F89601	Flat-20	
54AC2525 ⁽¹⁾	Rad-hard 1 to 8 skew clock driver			-	5962F92174	Flat-48	
54AC16244	Rad-hard 16-bit bus transceiver non inverting			-	5962F04210	Flat-48	
54ACT16244	Rad-hard 16-bit bus transceiver non inverting			-	5962F92022	Flat-48	
54AC16245	Rad-hard 16-bit bus transceiver 3-inverting			-	5962F04211	Flat-48	
54ACT16245	Rad-hard 16-bit 3-state buffer transceiver			-	5962F92023	Flat-48	
54AC16373	Rad-hard 16 D-type latch 3-state			-	5962F04212	Flat-48	
54ACT16373	Rad-hard 16-bit 3-state D-type latch			-	5962F92024	Flat-48	
54AC16374	Rad-hard 16 D-type flip flop 3-state			-	5962F04213	Flat-48	
54ACT16374	Rad-hard 16-bit 3-state D-type Flip-Flop			-	5962F92025	Flat-48	
54AC164245	Rad-hard 16-bit 3 to 5 V level shifter transceiver 3-state	100krad (Si)	-	5962R98580	Flat-48		

1. The product is not yet formally qualified by DSCC

Note: Contact ST sales office for information about the specific conditions for other 54AC or 54ACT part number, product in die form and QML-Q versions

2 Input equivalent circuit diagram

Figure 1. Input equivalent circuit diagram



3 Maximum rating

3.1 Absolute maximum ratings

3.1.1 54AC series

Table 2. Absolute maximum ratings - 54AC series

Symbol	Parameter	Value	Unit
V_{CC}	Supply voltage	-0.5 to +7.0	V
V_I	DC input voltage	-0.5 to +7.0	V
V_O	DC output voltage	-0.5 to $V_{CC} + 0.5$	V
I_{IK}	DC input diode current	± 20	mA
I_{OK}	DC output diode current	± 50	mA
I_O	DC output current	± 50	mA
I_{CC} or I_{GND}	DC V_{CC} or ground current	from 100 to 400	mA
T_{STG}	Storage temperature	-65 to +150	°C
T_L	Lead temperature (10 sec)	260	°C

Note: All voltage values are referred to V_{SS} pin voltage.

3.1.2 54ACT series

Table 3. Absolute maximum ratings - 54ACT series

Symbol	Parameter	Value	Unit
V_{CC}	Supply voltage	-0.5 to +6.0	V
V_I	DC input voltage	-0.5 to +6.0	V
V_O	DC output voltage	-0.5 to $V_{CC} + 0.5$	V
I_{IK}	DC input diode current	± 20	mA
I_{OK}	DC output diode current	± 50	mA
I_O	DC output current	± 50	mA
I_{CC} or I_{GND}	DC V_{CC} or ground current	from 100 to 400	mA
T_{STG}	Storage temperature	-65 to +150	°C
T_L	Lead temperature (10 sec)	260	°C

Note: All voltage values are referred to V_{SS} pin voltage.

3.2 Recommended operating conditions

3.2.1 54AC series

Table 4. Recommended operating conditions

Symbol	Parameter	Value	Unit
V_{CC}	Supply voltage	2 to 6	V
V_I	Input voltage	0 to V_{CC}	V
V_O	Output voltage	0 to V_{CC}	V
T_{OP}	Operating temperature	-55 to 150	°C
dt/dv	Input rise and fall time ⁽¹⁾ $V_{CC} = 3.0, 4.5$ or 5.5	0 to 8	ns/V

1. V_{IN} from 30% to 70% of V_{CC}

3.2.2 54ACT series

Table 5. Recommended operating conditions

Symbol	Parameter	Value	Unit
V_{CC}	Supply voltage	4.5 to 5.5	V
V_I	Input voltage	0 to V_{CC}	V
V_O	Output voltage	0 to V_{CC}	V
T_{OP}	Operating temperature	-55 to 150	°C
dt/dv	Input rise and fall time ⁽¹⁾ $V_{CC} = 3.0, 4.5$ or 5.5	0 to 8	ns/V

1. V_{IN} from 30% to 70% of V_{CC}

4 Package mechanical data

In order 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.

Table 6. Ceramic Flat-14 mechanical data

Dim	mm		
	Min	Typ	Max
A	6.75	6.91	7.06
B	9.76	9.95	10.14
C	1.49		1.95
D	0.10	0.127	0.15
E	7.50	7.62	7.75
F		1.27	
G	0.38	0.43	0.48
H		6.0	
L	18.75	en	22.0
M		0.38	
N		4.31	

Figure 2. Ceramic Flat-14 mechanical drawing

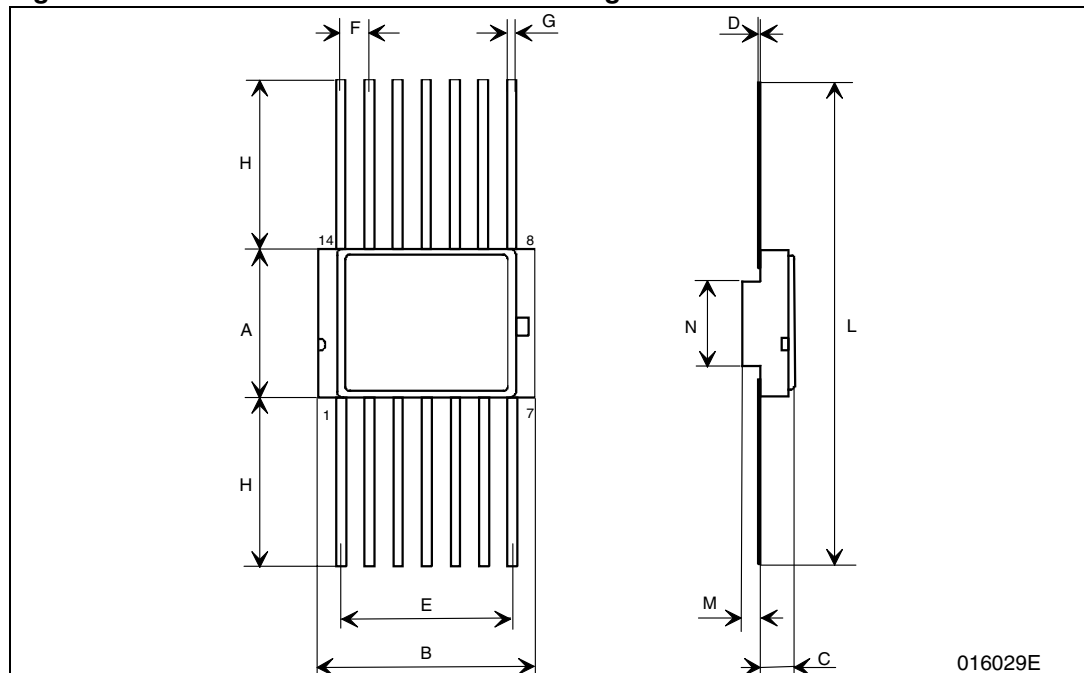
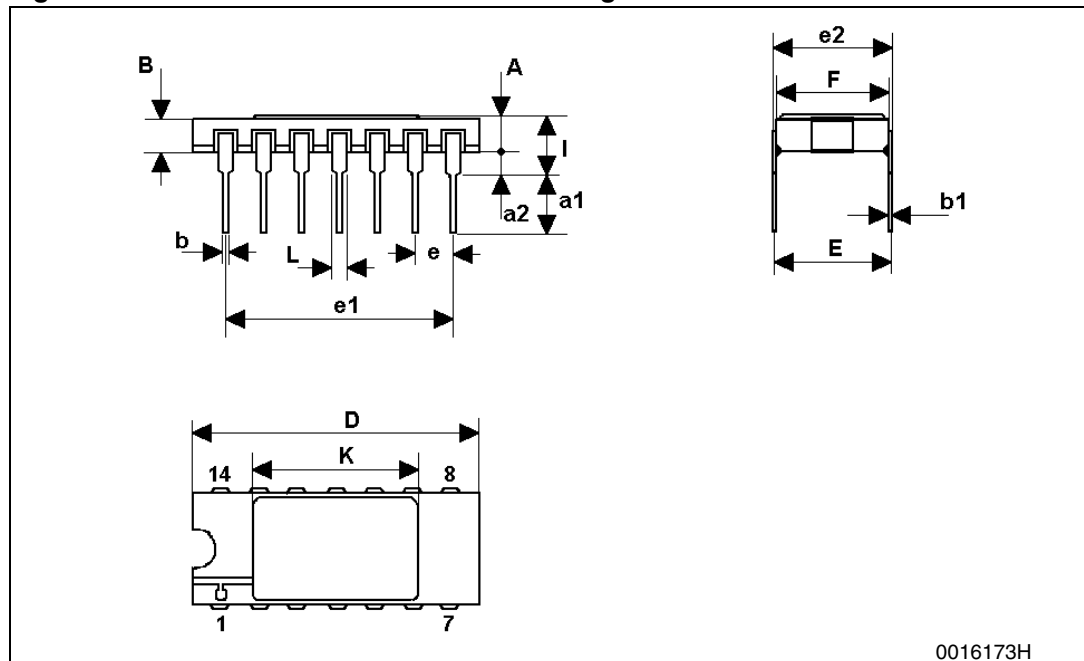


Table 7. Ceramic DIL-14 mechanical data

Dim.	mm		
	Min.	Typ	Max.
A	2.1		2.54
a1	3.00		3.70
a2	0.63	0.88	1.14
B	1.82	2.03	2.39
b	0.40	0.45	0.50
b1	0.20	0.254	0.30
D	18.79	19.00	19.20
E	7.36	7.62	7.87
e		2.54	
e1	15.11	15.24	15.37
e2	7.62	7.87	8.12
F	7.11		7.75
I			3.70
K	10.90		12.1 n
L	1.14	1.27	1.5

Figure 3. Ceramic DIL-14 mechanical drawing



0016173H

Table 8. Ceramic Flat-16 mechanical data

Dim.	mm		
	Min.	Typ	Max.
A	6.75	6.91	7.06
B	9.76	9.94	10.14
C	1.49		1.95
D	0.102	0.127	0.152
E	8.76	8.89	9.01
F		1.27	
G	0.38	0.43	0.48
H	6.0		
L	18.75	en	22.0
M	0.33	0.38	0.43
N		4.31	

Figure 4. Ceramic Flat-16 mechanical drawing

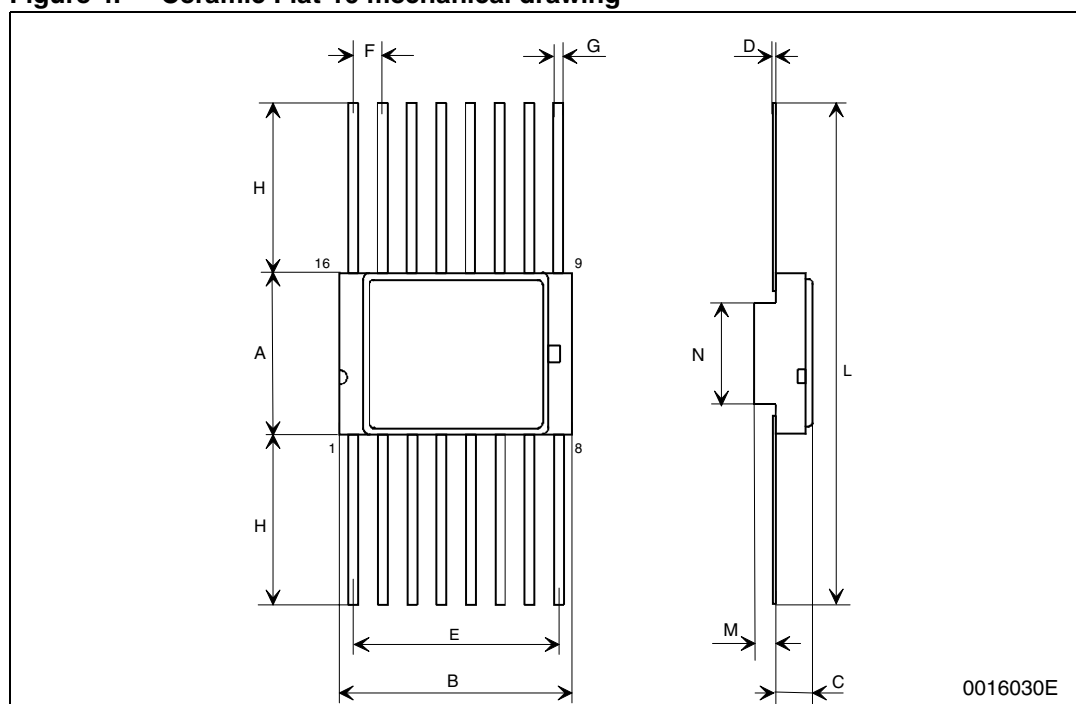


Table 9. Ceramic DIL-16 package dimensions

Dim	mm		
	Min	Typ	Max
A	2.10		2.71
a1	3.00		3.70
a2	0.63	0.88	1.14
B	1.82		2.39
b	0.40	0.45	0.50
b1	0.20	0.254	0.30
D	20.06	20.32	20.58
E	7.36	7.62	7.87
e		2.54	
e1	17.65	17.78	17.90
e2	7.62	7.87	8.12
F	7.29	7.49	7.70
I			3.83
K	10.90		12.10
L	1.14		1.50

Figure 5. Ceramic DIL-16 package drawing

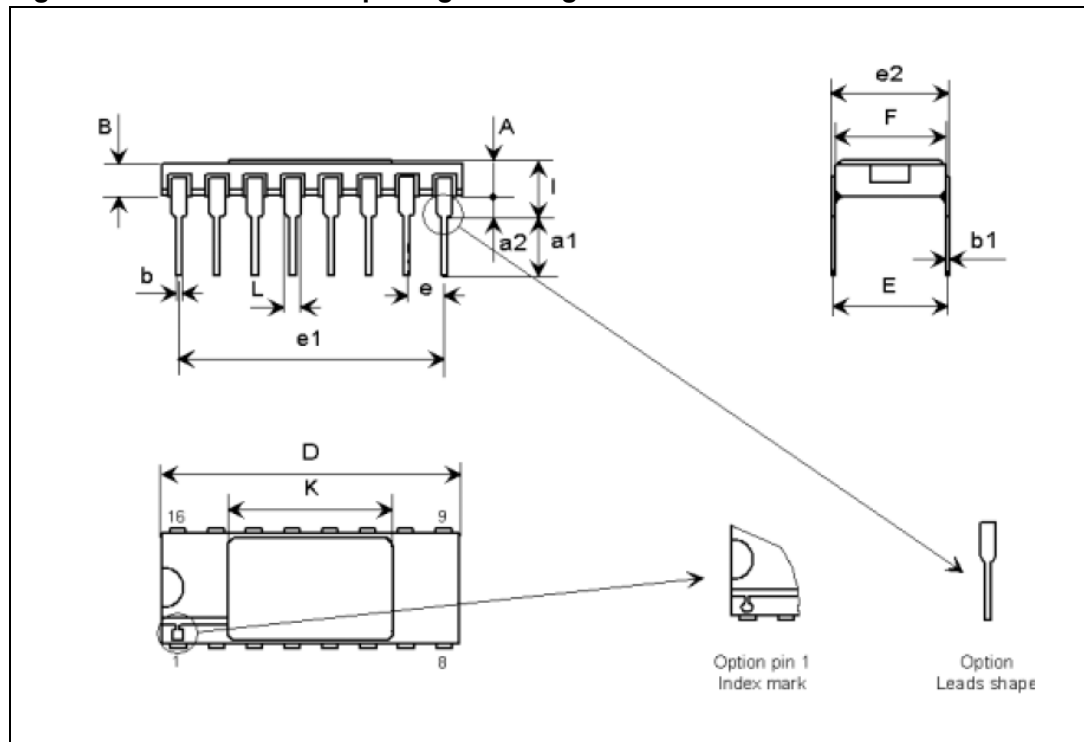


Table 10. Ceramic DSCC Flat-20 package dimensions

Dim	mm		
	Min	Typ	Max
A		1.91	2.21
b		0.38	0.48
c		0.076	0.152
D		12.83	13.08
E		6.99	7.24
E2	5.21	5.05	5.36
E3	0.95		
e		1.14	1.4
L		6.35	9.39
Q		0.25	
S1	0.55		

Figure 6. Ceramic DSCC Flat-20 package drawing

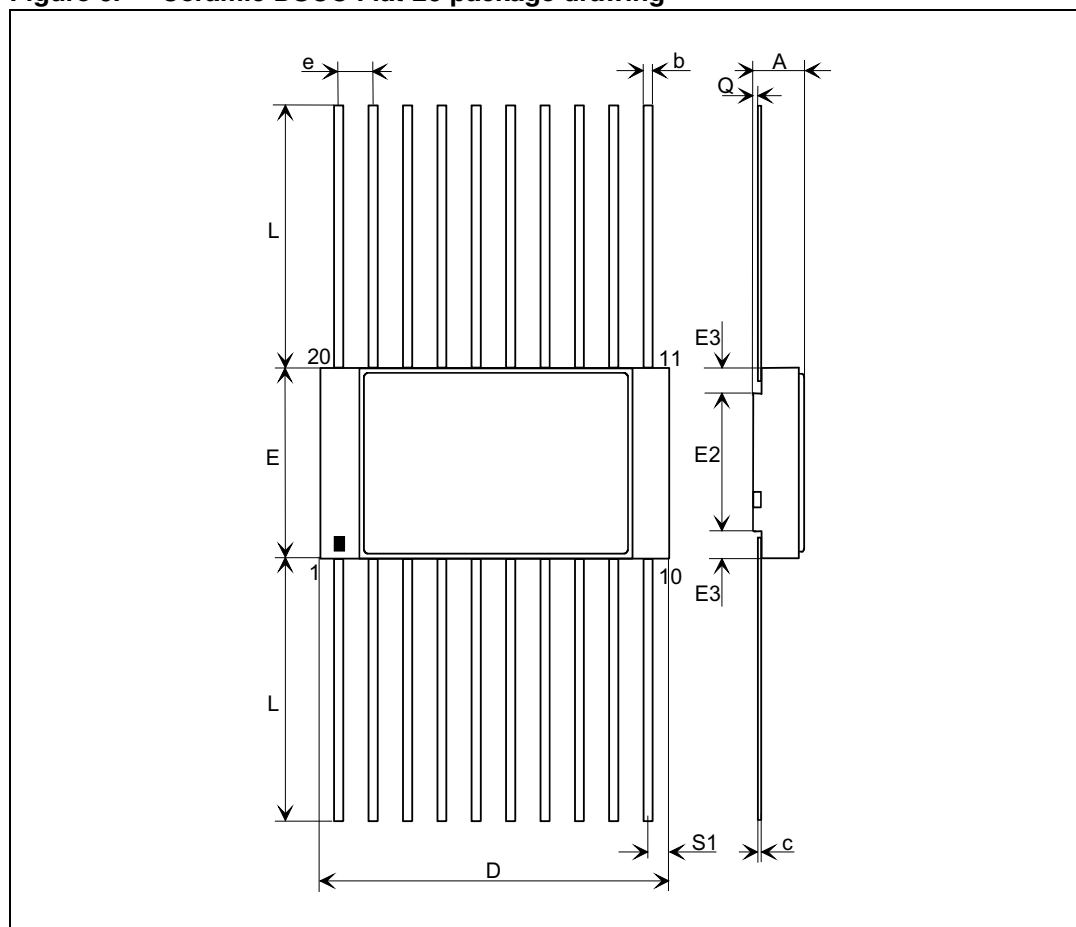
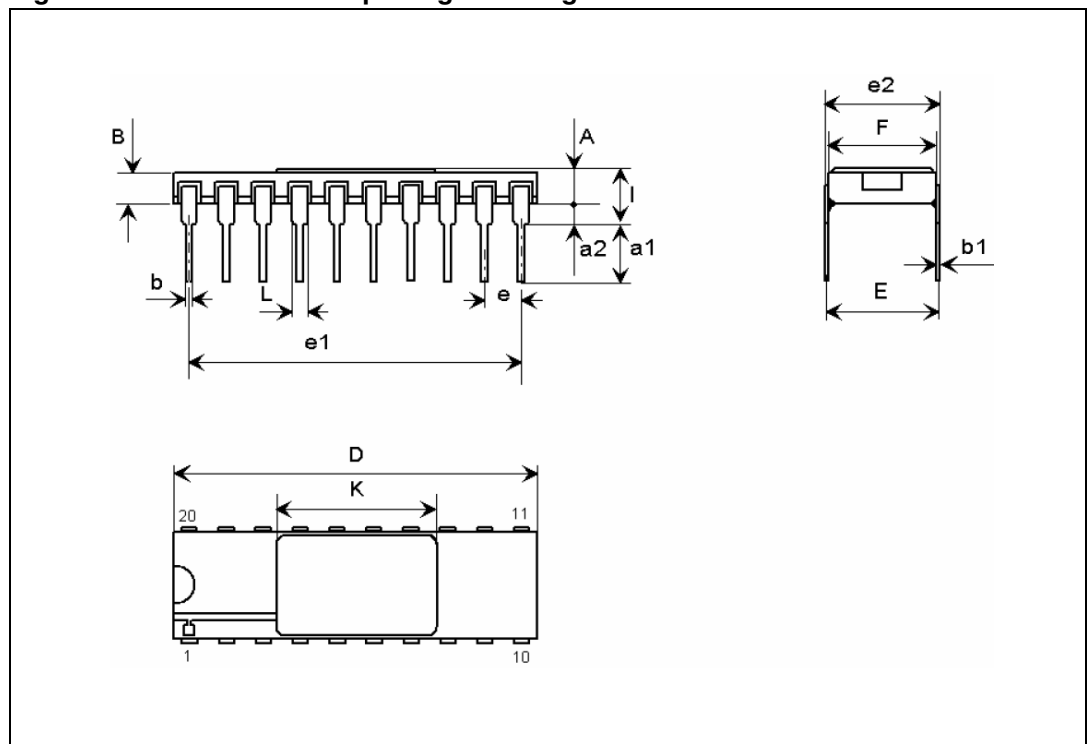


Table 11. Ceramic DIL-20 package dimensions

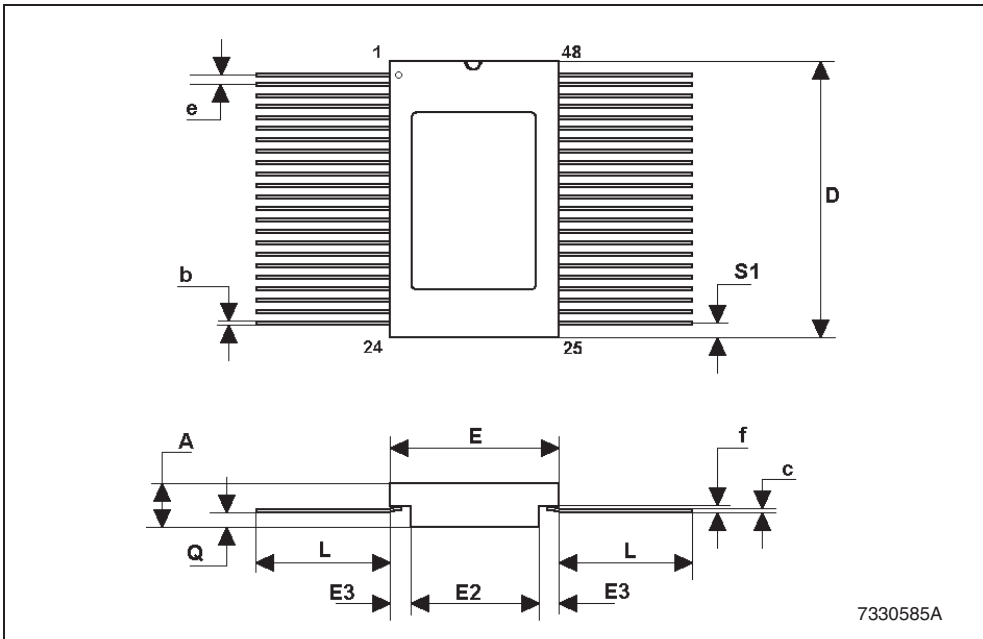
Dim	mm		
	Min	Typ	Max
A	2.1		2.72
a1	3		3.7
a2	0.63	0.88	1.14
B	1.93	2.03	2.23
b	0.4	0.45	0.5
b1	0.2	0.254	0.3
D	25.14	25.4	25.65
E	7.36	7.62	7.87
e		2.54	
e1	22.73	22.86	22.99
e2	7.62	7.87	8.12
F	7.29	7.49	7.62
l			3.86
K	11.3		11.56
L	1.14	1.27	1.4

Figure 7. Ceramic DIL-20 package drawing



CERAMIC FLAT-48 (MIL-STD-1835) MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.18		2.72	0.086		0.107
b		0.254			0.010	
c		0.15			0.006	
D		15.75			0.620	
E		9.65			0.380	
E2		6.35			0.250	
e		0.635			0.025	
L		8.38			0.330	
Q	0.66		1.14	0.026		0.045
S1		0.13			0.005	



7330585A



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Ordering information

Table 12. Ordering information

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFAC00K1	-	Engineering model	Flat-14	Gold	RHFAC00K1	0.70	-	Strip Pack
RHFAC00K01V	5962F8754901VXC	QML-V flight	Flat-14	Gold	5962F8754901VXC	0.70	Y	
RHFAC00K02V	5962F8754901VXA	QML-V flight	Flat-14	Solder dip	5962F8754901VXA	0.70	Y	
RHFAC00D03V	5962F8754901VCC	QML-V flight	DIL-14	Gold	5962F8754901VCC	2.20	-	
RHFACT00K1	-	Engineering model	Flat-14	Gold	RHFACT00K1	0.70	-	
RHFACT00K01V	5962F8769903VXC	QML-V flight	Flat-14	Gold	5962F8769903VXC	0.70	Y	
RHFACT00K02V	5962F8769903VXA	QML-V flight	Flat-14	Solder dip	5962F8769903VXA	0.70	Y	
RHFACT00D03V	5962F8769903VCC	QML-V flight	DIL-14	Gold	5962F8769903VCC	2.20	-	
RHFAC02K1	-	Engineering model	Flat-14	Gold	RHFAC02K1	0.70	-	
RHFAC02K01V	5962F8761201VXC	QML-V flight	Flat-14	Gold	5962F8761201VXC	0.70	Y	
RHFAC02K02V	5962F8761201VXA	QML-V flight	Flat-14	Solder dip	5962F8761201VXA	0.70	Y	
RHFAC02D03V	5962F8761201VCC	QML-V flight	DIL-14	Gold	5962F8761201VCC	2.20	-	
RHFACT02K1	-	Engineering model	Flat-14	Gold	RHFACT02K1	0.70	-	
RHFACT02K01V	5962F8979101VXC	QML-V flight	Flat-14	Gold	5962F8979101VXC	0.70	-	
RHFACT02K02V	5962F8979101VXA	QML-V flight	Flat-14	Solder dip	5962F8979101VXA	0.70	-	
RHFAC04K1	-	Engineering model	Flat-14	Gold	RHFAC04K1	0.70	-	
RHFAC04K01V	5962F8760901VXC	QML-V flight	Flat-14	Gold	5962F8760901VXC	0.70	Y	
RHFAC04K02V	5962F8760901VXA	QML-V flight	Flat-14	Solder dip	5962F8760901VXA	0.70	Y	
RHFAC04D03V	5962F8760901VCC	QML-V flight	DIL-14	Gold	5962F8760901VCC	2.20	-	
RHFACT04K1	-	Engineering model	Flat-14	Gold	RHFACT04K1	0.70	-	
RHFACT04K01V	5962F8973403VXC	QML-V flight	Flat-14	Gold	5962F8973403VXC	0.70	-	
RHFACT04K02V	5962F8973403VXA	QML-V flight	Flat-14	Solder dip	5962F8973403VXA	0.70	-	



Table 12. Ordering information (continued)

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFACT04D03V	5962F8973403VCC	QML-V flight	DIL-14	Gold	5962F8973403VCC	2.20	-	Strip Pack
RHFAC08K1	-	Engineering model	Flat-14	Gold	RHFAC08K1	0.70	-	
RHFAC08K01V	5962F8761501VXC	QML-V flight	Flat-14	Gold	5962F8761501VXC	0.70	Y	
RHFAC08K02V	5962F8761501VXA	QML-V flight	Flat-14	Solder dip	5962F8761501VXA	0.70	Y	
RHFAC08D03V	5962F8761501VCC	QML-V flight	DIL-14	Gold	5962F8761501VCC	2.20	-	
RHFACT08K1	-	Engineering model	Flat-14	Gold	RHFACT08K1	0.70	-	
RHFACT08K01V	5962F8954703VXC	QML-V flight	Flat-14	Gold	5962F8954703VXC	0.70	-	
RHFACT08K02V	5962F8954703VXA	QML-V flight	Flat-14	Solder dip	5962F8954703VXA	0.70	-	
RHFACT08D03V	5962F8954703VCC	QML-V flight	DIL-14	Gold	5962F8954703VCC	2.20	-	
RHFAC10K1	-	Engineering model	Flat-14	Gold	RHFAC10K1	0.70	-	
RHFAC10K01V	5962F8761001VXC	QML-V flight	Flat-14	Gold	5962F8761001VXC	0.70	Y	
RHFAC10K02V	5962F8761001VXA	QML-V flight	Flat-14	Solder dip	5962F8761001VXA	0.70	Y	
RHFAC10D03V	5962F8761001VCC	QML-V flight	DIL-14	Gold	5962F8761001VCC	2.20	-	
RHFACT10K1	-	Engineering model	Flat-14	Gold	RHFACT10K1	0.70	-	
RHFACT10K01V	5962F9218202VXC	QML-V flight	Flat-14	Gold	5962F9218202VXC	0.70	-	
RHFACT10K02V	5962F9218202VXA	QML-V flight	Flat-14	Solder dip	5962F9218202VXA	0.70	-	
RHFAC11K1	-	Engineering model	Flat-14	Gold	RHFAC11K1	0.70	-	
RHFAC11K01V	5962F8761101VXC	QML-V flight	Flat-14	Gold	5962F8761101VXC	0.70	Y	
RHFAC11K02V	5962F8761101VXA	QML-V flight	Flat-14	Solder dip	5962F8761101VXA	0.70	Y	
RHFAC11D03V	5962F8761101VCC	QML-V flight	DIL-14	Gold	5962F8761101VCC	2.20	-	
RHFACT11K1	-	Engineering model	Flat-14	Gold	RHFACT11K1	0.70	-	
RHFACT11K01V	5962F9077202VXC	QML-V flight	Flat-14	Gold	5962F9077202VXC	0.70	-	
RHFACT11K02V	5962F9077202VXA	QML-V flight	Flat-14	Solder dip	5962F9077202VXA	0.70	-	



Table 12. Ordering information (continued)

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFAC14K1	-	Engineering model	Flat-14	Gold	RHFAC14K1	0.70	-	Strip Pack
RHFAC14K01V	5962F8762401VXC	QML-V flight	Flat-14	Gold	5962F8762401VXC	0.70	Y	
RHFAC14K02V	5962F8762401VXA	QML-V flight	Flat-14	Solder dip	5962F8762401VXA	0.70	Y	
RHFAC14D03V	5962F8762401VCC	QML-V flight	DIL-14	Gold	5962F8762401VCC	2.20	-	
RHFAC14D04V	5962F8762401VCA	QML-V flight	DIL-14	Solder dip	5962F8762401VCA	2.20	-	
RHFACT14K1	-	Engineering model	Flat-14	Gold	RHFACT14K1	0.70	-	
RHFACT14K01V	5962F9681301VXC	QML-V flight	Flat-14	Gold	5962F9681301VXC	0.70	-	
RHFACT14K02V	5962F9681301VXA	QML-V flight	Flat-14	Solder dip	5962F9681301VXA	0.70	-	
RHFAC32K1	-	Engineering model	Flat-14	Gold	RHFAC32K1	0.70	-	
RHFAC32K01V	5962F8761401VXC	QML-V flight	Flat-14	Gold	5962F8761401VXC	0.70	Y	
RHFAC32K02V	5962F8761401VXA	QML-V flight	Flat-14	Solder dip	5962F8761401VXA	0.70	Y	
RHFAC32D03V	5962F8761401VCC	QML-V flight	DIL-14	Gold	5962F8761401VCC	2.20	-	
RHFACT32K1	-	Engineering model	Flat-14	Gold	RHFACT32K1	0.70	-	
RHFACT32K01V	5962F8973603VXC	QML-V flight	Flat-14	Gold	5962F8973603VXC	0.70	-	
RHFACT32K02V	5962F8973603VXA	QML-V flight	Flat-14	Solder dip	5962F8973603VXA	0.70	-	
RHFACT32D03V	5962F8973603VCC	QML-V flight	DIL-14	Gold	5962F8973603VCC	2.20	-	
RHFAC74K1	-	Engineering model	Flat-14	Gold	RHFAC74K1	0.70	-	
RHFAC74K01V	5962F8852003VXC	QML-V flight	Flat-14	Gold	5962F8852003VXC	0.70	Y	
RHFAC74K02V	5962F8852003VXA	QML-V flight	Flat-14	Solder dip	5962F8852003VXA	0.70	Y	
RHFAC74D03V	5962F8852003VCC	QML-V flight	DIL-14	Gold	5962F8852003VCC	2.20	-	
RHFACT74K1	-	Engineering model	Flat-14	Gold	RHFACT74K1	0.70	-	
RHFACT74K01V	5962F87525 03VXC	QML-V flight	Flat-14	Gold	5962F87525 03VXC	0.70	-	
RHFACT74K02V	5962F87525 03VXA	QML-V flight	Flat-14	Solder dip	5962F87525 03VXA	0.70	-	
RHFACT74D03V	5962F87525 03VCC	QML-V flight	DIL-14	Gold	5962F87525 03VCC	2.20	-	
RHFAC86K1	-	Engineering model	Flat-14	Gold	RHFAC86K1	0.70	-	



Table 12. Ordering information (continued)

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFAC86K01V	5962F8955001VXC	QML-V flight	Flat-14	Gold	5962F8955001VXC	0.70	Y	Strip Pack
RHFAC86K02V	5962F8955001VXA	QML-V flight	Flat-14	Solder dip	5962F8955001VXA	0.70	Y	
RHFAC86D03V	5962F8955001VCC	QML-V flight	DIL-14	Gold	5962F8955001VCC	2.20	-	
RHFACT86K1	-	Engineering model	Flat-14	Gold	RHFACT86K1	0.70	-	
RHFACT86K01V	5962F9068702VXC	QML-V flight	Flat-14	Gold	5962F9068702VXC	0.70	Y	
RHFACT86K02V	5962F9068702VXA	QML-V flight	Flat-14	Solder dip	5962F9068702VXA	0.70	Y	
RHFAC138K1	-	Engineering model	Flat-16	Gold	RHFAC138K1	0.70	-	
RHFAC138K01V	5962F8762201VXC	QML-V flight	Flat-16	Gold	5962F8762201VXC	0.70	Y	
RHFAC138K02V	5962F8762201VXA	QML-V flight	Flat-16	Solder dip	5962F8762201VXA	0.70	Y	
RHFAC138D03V	5962F8762201VEC	QML-V flight	DIL-16	Gold	5962F8762201VEC	2.20	-	
RHFACT138K1	-	Engineering model	Flat-16	Gold	RHFACT138K1	0.70	-	
RHFACT138K01V	5962F8755403VXC	QML-V flight	Flat-16	Gold	5962F8755403VXC	0.70	-	
RHFACT138K02V	5962F8755403VXA	QML-V flight	Flat-16	Solder dip	5962F8755403VXA	0.70	-	
RHFAC139K1	-	Engineering model	Flat-16	Gold	RHFAC139K1	0.70	-	
RHFAC139K01V	5962F8762301VXC	QML-V flight	Flat-16	Gold	5962F8762301VXC	0.70	Y	
RHFAC139K02V	5962F8762301VXA	QML-V flight	Flat-16	Solder dip	5962F8762301VXA	0.70	Y	
RHFACT139K1	-	Engineering model	Flat-16	Gold	RHFACT139K1	0.70	-	
RHFACT139K01V	5962F8755302VXC	QML-V flight	Flat-16	Gold	5962F8755302VXC	0.70	-	
RHFACT139K02V	5962F8755302VXA	QML-V flight	Flat-16	Solder dip	5962F8755302VXA	0.70	-	
RHFACT139D03V	5962F8755302VEC	QML-V flight	DIL-16	Gold	5962F8755302VEC	2.20	-	
RHFAC151K1	-	Engineering model	Flat-16	Gold	RHFAC151K1	0.70	-	
RHFAC151K01V	5962F8769102VXC	QML-V flight	Flat-16	Gold	5962F8769102VXC	0.70	-	
RHFAC151K02V	5962F8769102VXA	QML-V flight	Flat-16	Solder dip	5962F8769102VXA	0.70	-	
RHFACT151K1	-	Engineering model	Flat-16	Gold	RHFACT151K1	0.70	-	
RHFACT151K01V	5962F8875602VXC	QML-V flight	Flat-16	Gold	5962F8875602VXC	0.70	-	



Table 12. Ordering information (continued)

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFACT151K02V	5962F8875602VXA	QML-V flight	Flat-16	Solder dip	5962F8875602VXA	0.70	-	Strip Pack
RHFAC157K1	-	Engineering model	Flat-16	Gold	RHFAC157K1	0.70	-	
RHFAC157K01V	5962F8953901VXC	QML-V flight	Flat-16	Gold	5962F8953901VXC	0.70	Y	
RHFAC157K02V	5962F8953901VXA	QML-V flight	Flat-16	Solder dip	5962F8953901VXA	0.70	Y	
RHFAC157D03V	5962F8953901VEC	QML-V flight	DIL-16	Gold	5962F8953901VEC	2.20	-	
RHFACT157K1	-	Engineering model	Flat-16	Gold	RHFACT157K1	0.70	-	
RHFACT157K01V	5962F8968802VXC	QML-V flight	Flat-16	Gold	5962F8968802VXC	0.70	-	
RHFACT157K02V	5962F8968802VXA	QML-V flight	Flat-16	Solder dip	5962F8968802VXA	0.70	-	
RHFACT157D03V	5962F8968802VEC	QML-V flight	DIL-16	Gold	5962F8968802VEC	2.20	-	
RHFAC161K1	-	Engineering model	Flat-16	Gold	RHFAC161K1	0.70	-	
RHFAC161K01V	5962F8956101VXC	QML-V flight	Flat-16	Gold	5962F8956101VXC	0.70	Y	
RHFAC161K02V	5962F8956101VXA	QML-V flight	Flat-16	Solder dip	5962F8956101VXA	0.70	Y	
RHFAC161D03V	5962F8956101VEC	QML-V flight	DIL-16	Gold	5962F8956101VEC	2.20	-	
RHFACT161K1	-	Engineering model	Flat-16	Gold	RHFACT161K1	0.70	-	
RHFACT161K01V	5962F9172202VXC	QML-V flight	Flat-16	Gold	5962F9172202VXC	0.70	-	
RHFACT161K02V	5962F9172202VXA	QML-V flight	Flat-16	Solder dip	5962F9172202VXA	0.70	-	
RHFAC174K1	-	Engineering model	Flat-16	Gold	RHFAC174K1	0.70	-	
RHFAC174K01V	5962F8762602VXC	QML-V flight	Flat-16	Gold	5962F8762602VXC	0.70	-	
RHFAC174K02V	5962F8762602VXA	QML-V flight	Flat-16	Solder dip	5962F8762602VXA	0.70	-	
RHFACT174K1	-	Engineering model	Flat-16	Gold	RHFACT174K1	0.70	-	
RHFACT174K01V	5962F8775702VXC	QML-V flight	Flat-16	Gold	5962F8775702VXC	0.70	-	
RHFACT174K02V	5962F8775702VXA	QML-V flight	Flat-16	Solder dip	5962F8775702VXA	0.70	-	
RHFAC191K1	-	Engineering model	Flat-16	Gold	RHFAC191K1	0.70	-	
RHFAC191K01V	5962F8974902VXC	QML-V flight	Flat-16	Gold	5962F8974902VXC	0.70	-	
RHFAC191K02V	5962F8974902VXA	QML-V flight	Flat-16	Solder dip	5962F8974902VXA	0.70	-	



Table 12. Ordering information (continued)

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFAC191D03V	5962F8974902VEC	QML-V flight	DIL-16	Gold	5962F8974902VEC	2.20	-	Strip Pack
RHFACT191K1	-	Engineering model	Flat-16	Gold	RHFACT191K1	0.70	-	
RHFACT191K01V	5962F0422801VXC	QML-V flight	Flat-16	Gold	5962F0422801VXC	0.70	-	
RHFACT191K02V	5962F0422801VXA	QML-V flight	Flat-16	Solder dip	5962F0422801VXA	0.70	-	
RHFAC240K1	-	Engineering model	Flat-20	Gold	RHFAC240K1	0.90	-	
RHFAC240K01V	5962F8755001VXC	QML-V flight	Flat-20	Gold	5962F8755001VXC	0.90	Y	
RHFAC240K02V	5962F8755001VXA	QML-V flight	Flat-20	Solder dip	5962F8755001VXA	0.90	Y	
RHFACT240K1	-	Engineering model	Flat-20	Gold	RHFACT240K1	0.90	-	
RHFACT240K01V	5962F8775903VXC	QML-V flight	Flat-20	Gold	5962F8775903VXC	0.90	Y	
RHFACT240K02V	5962F8775903VXA	QML-V flight	Flat-20	Solder dip	5962F8775903VXA	0.90	Y	
RHFAC244K1	-	Engineering model	Flat-20	Gold	RHFAC244K1	0.90	-	
RHFAC244K01V	5962F8755201VXC	QML-V flight	Flat-20	Gold	5962F8755201VXC	0.90	Y	
RHFAC244K02V	5962F8755201VXA	QML-V flight	Flat-20	Solder dip	5962F8755201VXA	0.90	Y	
RHFACT244K1	-	Engineering model	Flat-20	Gold	RHFACT244K1	0.90	-	
RHFACT244K01V	5962F8776003VXC	QML-V flight	Flat-20	Gold	5962F8776003VXC	0.90	Y	
RHFACT244K02V	5962F8776003VXA	QML-V flight	Flat-20	Solder dip	5962F8776003VXA	0.90	Y	
RHFAC245K1	-	Engineering model	Flat-20	Gold	RHFAC245K1	0.90	-	
RHFAC245K01V	5962F8775802VXC	QML-V flight	Flat-20	Gold	5962F8775802VXC	0.90	Y	
RHFAC245K02V	5962F8775802VXA	QML-V flight	Flat-20	Solder dip	5962F8775802VXA	0.90	Y	
RHFACT245K1	-	Engineering model	Flat-20	Gold	RHFACT245K1	0.90	-	
RHFACT245K01V	5962F8766303VXC	QML-V flight	Flat-20	Gold	5962F8766303VXC	0.90	Y	
RHFACT245K02V	5962F8766303VXA	QML-V flight	Flat-20	Solder dip	5962F8766303VXA	0.90	Y	
RHFAC273K1	-	Engineering model	Flat-20	Gold	RHFAC273K1	0.90	-	
RHFAC273K01V	5962F8775601VXC	QML-V flight	Flat-20	Gold	5962F8775601VXC	0.90	Y	
RHFAC273K02V	5962F8775601VXA	QML-V flight	Flat-20	Solder dip	5962F8775601VXA	0.90	Y	



Table 12. Ordering information (continued)

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFACT273K1	-	Engineering model	Flat-20	Gold	RHFACT273K1	0.90	-	Strip Pack
RHFACT273K01V	5962F0152701VXC	QML-V flight	Flat-20	Gold	5962F0152701VXC	0.90	-	
RHFACT273K02V	5962F0152701VXA	QML-V flight	Flat-20	Solder dip	5962F0152701VXA	0.90	-	
RHFAC373K1	-	Engineering model	Flat-20	Gold	RHFAC373K1	0.90	-	
RHFAC373K01V	5962F8755501VXC	QML-V flight	Flat-20	Gold	5962F8755501VXC	0.90	Y	
RHFAC373K02V	5962F8755501VXA	QML-V flight	Flat-20	Solder dip	5962F8755501VXA	0.90	Y	
RHFACT373K1	-	Engineering model	Flat-20	Gold	RHFACT373K1	0.90	-	
RHFACT373K01V	5962F8755603VXC	QML-V flight	Flat-20	Gold	5962F8755603VXC	0.90	-	
RHFACT373K02V	5962F8755603VXA	QML-V flight	Flat-20	Solder dip	5962F8755603VXA	0.90	-	
RHFAC374K1	-	Engineering model	Flat-20	Gold	RHFAC374K1	0.90	-	
RHFAC374K01V	5962F8769401VXC	QML-V flight	Flat-20	Gold	5962F8769401VXC	0.90	Y	
RHFAC374K02V	5962F8769401VXA	QML-V flight	Flat-20	Solder dip	5962F8769401VXA	0.90	Y	
RHFACT374K1	-	Engineering model	Flat-20	Gold	RHFACT374K1	0.90	-	
RHFACT374K01V	5962F8763103VXC	QML-V flight	Flat-20	Gold	5962F8763103VXC	0.90	-	
RHFACT374K02V	5962F8763103VXA	QML-V flight	Flat-20	Solder dip	5962F8763103VXA	0.90	-	
RHFAC521K1	-	Engineering model	Flat-20	Gold	RHFAC521K1	0.90	-	
RHFAC521K01V ⁽¹⁾	-	QML-V flight	Flat-20	Gold		0.90	-	
RHFAC521K02V ⁽¹⁾	-	QML-V flight	Flat-20	Gold		0.90	-	
RHFAC540K1	-	Engineering model	Flat-20	Gold	RHFAC540K1	0.90	-	
RHFAC540K01V ⁽¹⁾	-	QML-V flight	Flat-20	Gold		0.90	-	
RHFAC540K02V ⁽¹⁾	-	QML-V flight	Flat-20	Gold		0.90	-	
RHFAC541K1	-	Engineering model	Flat-20	Gold	RHFAC541K1	0.90	-	
RHFAC541K01V	5962F8870601VXC	QML-V flight	Flat-20	Gold	5962F8870601VXC	0.90	Y	
RHFAC541K02V	5962F8870601VXA	QML-V flight	Flat-20	Solder dip	5962F8870601VXA	0.90	Y	
RHFACT541K1	-	Engineering model	Flat-20	Gold	RHFACT541K1	0.90	-	



Table 12. Ordering information (continued)

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFACT541K01V	5962F8979502VXC	QML-V flight	Flat-20	Gold	5962F8979502VXC	0.90	-	Strip Pack
RHFACT541K02V	5962F8979502VXA	QML-V flight	Flat-20	Solder dip	5962F8979502VXA	0.90	-	
RHFAC574K1	-	Engineering model	Flat-20	Gold	RHFAC574K1	0.90	-	
RHFAC574K01V	5962F9677302VXC	QML-V flight	Flat-20	Gold	5962F9677302VXC	0.90	-	
RHFAC574K02V	5962F9677302VXA	QML-V flight	Flat-20	Solder dip	5962F9677302VXA	0.90	-	
RHFACT574K1	-	Engineering model	Flat-20	Gold	RHFACT574K1	0.90	-	
RHFACT574K01V	5962F8960102VXC	QML-V flight	Flat-20	Gold	5962F8960102VXC	0.90	Y	
RHFACT574K02V	5962F8960102VXA	QML-V flight	Flat-20	Solder dip	5962F8960102VXA	0.90	Y	
RHFAC2525K1	-	Engineering model	Flat-48	Gold	RHFAC2525K1	1.50	-	
RHFAC2525K01V ⁽¹⁾	-	QML-V flight	Flat-48	Gold	-	1.50	-	
RHFAC16244K1	-	Engineering model	Flat-48	Gold	RHFAC16244K1	1.50	-	
RHFAC16244K01V	5962F0421001VXC	QML-V flight	Flat-48	Gold	5962F0421001VXC	1.50	Y	
RHFAC16244K02V	5962F0421001VXA	QML-V flight	Flat-48	Solder dip	5962F0421001VXA	1.50	Y	
RHFACT16244K1	-	Engineering model	Flat-48	Gold	RHFACT16244K1	1.50	-	
RHFACT16244K01V	5962F9202202VYC	QML-V flight	Flat-48	Gold	5962F9202202VYC	1.50	-	
RHFACT16244K02V	5962F9202202VYA	QML-V flight	Flat-48	Solder dip	5962F9202202VYA	1.50	-	
RHFAC16245K1	-	Engineering model	Flat-48	Gold	RHFAC16245K1	1.50	-	
RHFAC16245K01V	5962F0421101VXC	QML-V flight	Flat-48	Gold	5962F0421101VXC	1.50	-	
RHFAC16245K02V	5962F0421101VXA	QML-V flight	Flat-48	Solder dip	5962F0421101VXA	1.50	-	
RHFACT16245K1	-	Engineering model	Flat-48	Gold	RHFACT16245K1	1.50	-	
RHFACT16245K01V	5962F9202302VYC	QML-V flight	Flat-48	Gold	5962F9202302VYC	1.50	-	
RHFACT16245K02V	5962F9202302VYA	QML-V flight	Flat-48	Solder dip	5962F9202302VYA	1.50	-	
RHFAC16373K1	-	Engineering model	Flat-48	Gold	RHFAC16373K1	1.50	-	
RHFAC16373K01V	5962F0421201VXC	QML-V flight	Flat-48	Gold	5962F0421201VXC	1.50	-	
RHFAC16373K02V	5962F0421201VXA	QML-V flight	Flat-48	Solder dip	5962F0421201VXA	1.50	-	

**Table 12. Ordering information (continued)**

Order codes	SMD pin	Quality level	Package	Lead finish	Marking	Mass (g)	EPPL	Packing
RHFACT16373K1	-	Engineering model	Flat-48	Gold	RHFACT16373K1	1.50	-	Strip Pack
RHFACT16373K01V	5962F9202402VYC	QML-V flight	Flat-48	Gold	5962F9202402VYC	1.50	-	
RHFACT16373K02V	5962F9202402VYA	QML-V flight	Flat-48	Solder dip	5962F9202402VYA	1.50	-	
RHFAC16374K1	-	Engineering model	Flat-48	Gold	RHFAC16374K1	1.50	-	
RHFAC16374K01V	5962F0421301VXC	QML-V flight	Flat-48	Gold	5962F0421301VXC	1.50	-	
RHFAC16374K02V	5962F0421301VXA	QML-V flight	Flat-48	Solder dip	5962F0421301VXA	1.50	-	
RHFACT16374K1	-	Engineering model	Flat-48	Gold	RHFACT16374K1	1.50	-	
RHFACT16374K01V	5962F9202502VYC	QML-V flight	Flat-48	Gold	5962F9202502VYC	1.50	-	
RHFACT16374K02V	5962F9202502VYA	QML-V flight	Flat-48	Solder dip	5962F9202502VYA	1.50	-	
RHRAC164245K1	-	Engineering model	Flat-48	Gold	RHFAC164245K1	1.50	-	
RHRAC164245K01V	5962R9858008VYC	QML-V flight	Flat-48	Gold	5962R9858008VYC	1.50	-	

1. The product not yet formally qualified by DSCC

Note: *Contact an ST sales office for information about the specific conditions for other 54AC or 54ACT series part numbers, products in die form, and QML-Q versions*

6 Revision history

Table 13. Revision history

Date	Revision	Changes
06-Apr-2010	1	Initial release. The information in this data brief was previously published in a datasheet (document ID 17145).

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