TABLE 1(a)- Type Variants

Variant	Based on Type	Case	Figure	Breakdown Voltage V(BR) (V)	Repetitive peak reverse voltage VRRM (V)	Working Peak Reverse Voltage VRWM (V)	Lead/Terminal Material and Finish
07	1N6640U	LCC2D	2(c)	75	75	-	2
08	1N6640U	LCC2D	2(c)	75	75	-	4

Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

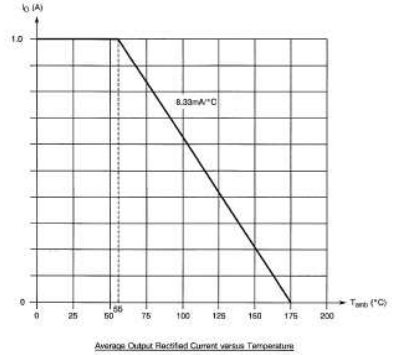
TABLE 1(b)- MAXIMUM RATINGS

N°	Characteristics	Symbols	Maximum Ratings	Unit	Remarks
1	Forward Surge Current (per Diode) Variants 01 to 06 Variants 07 to 08	IFSM	2.5 2	A(pk) A	At Tamb ≤ +25°C Note 1
3	Average Output Rectified Current Variants 01 to 06 Variants 07 to 08	IO	300 300	mA mA	Note 3 and 4 Note 7
4	Operating Temperature Range Variants 01 to 06 Variants 07 to 08 (Case Temperature)	Top Top	-65 to +175 -65 to +175	°C °C	Tamb Note 8
added	Junction Temperature Variants 07 to 08	Tj	+175	°C	
5	Storage Temperature Range Variants 01 to 06 Variants 07 to 08	Tstg	-65 to +175	°C	 Note 8
6	Soldering Temperature Variant 01 to 03 Variant 04 to 06 Variants 07 to 08	Tsol	 +260 +245 +245	°C	 Note 5 Note 6 Note 9
added	Thermal Resistance, Junction to Case Variants 07 to 08	Rth(j-c)	60	°C/W	Note 10
added	Thermal Resistance, Junction to Ambient Variants 07 to 08	Rth(j-a)	280	°C/W	

NOTES:
7. For Variants 07 to 08 at Tcase ≥ +155°C per Diode, derate linearly to 0A at +175°C.
8. For Variants with hot solder dip lead finish all testing performed at Tamb>+125°C shall be carried out in a 100% inert atmosphere.
9. Duration 5 seconds maximum. The same package must not be resoldered until 3 minutes have elapsed.
10. Package mounted on infinite heatsink.

Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

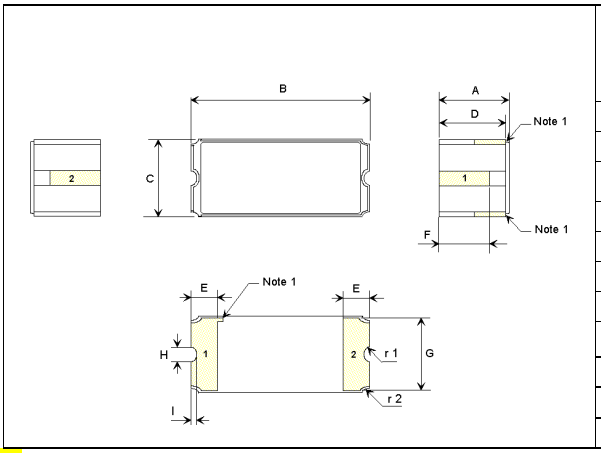
FIGURE 1 – PARAMETER DERATING INFORMATION (Not Applicable for the variants 07 to 08)



Average Output Rectified Current versus Temperature

Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

Figure 2(c)- Variant 07 to 08 - Leadless Chip Carrier 2 (LCC2D) – 2 Terminal

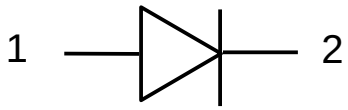


Ref	Dimensions					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	1.86	2.03	2.20	.073	.080	.087
B	4.44	4.57	4.77	.175	.180	.188
C	1.84	1.97	2.10	.072	.078	.083
D	1.53	1.7	1.87	.060	.067	.074
E	0.48		0.71	.019		.028
F	1.3			.051		
G	1.67			.066		
H	0.37			.015		
I	0.15			.006		
r1	0.15			.006		
r2	0.20			.008		

Notes:
1- The anode is identified by a metallization in 2 top angle castellations and by the index mark on the bottom metallization n° 1.
2- Measurement prior to solder coating the mounting pads on bottom of package.

Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

FIGURE 3 - FUNCTIONAL DIAGRAM
Variants 07 to 08
Terminal 1: Anode
Terminal 2: Cathode



Notes:
For LCC2, the lid is not connected to any lead.

Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.2.2 Deviations from Final Production Tests (Chart II)
(a) Para. 9.2.1, Bond Strenght Test: Not applicable.
Excepted for the variants 07 to 08 (Applicable in the Chart F2 of the ESCC N°5000 Issue 6).

(b) Para. 9.2.2, Die Shear Test: Not applicable.
Excepted for the variants 07 to 08 (Applicable in the Chart F2 of the ESCC N°5000 Issue 6).

(c) At any time following Para. 9.5.1, Thermal Shock Test, Thermal impedance measurements shall be performed in accordance with MIL-STD-750, TEST Method 3101 as specified in Table 2, item 11.
For the variants 07 to 08 (the thermal impedance is applicable in the Chart F3 of the ESCC N°5000 Issue 6).
For the variants 07 to 08 (the thermal shock is applicable in the Chart F4 Environmental Subgroup of the ESCC N°5000 Issue 6).

(d) Para. 9.6, Constant Acceleration: Not applicable.
Excepted for the variants 07 to 08 (Applicable in the Chart F4 Mechanical Subgroup of the ESCC N°5000 Issue 6).

(e) Para. 9.7 Particle Impact Noise Detection (PIND) test: Not applicable
Excepted for the variants 07 to 08 (Applicable in the Chart F3 of the ESCC N°5000 Issue 6).

(f) Para. 9.8.1, Seal Test Fine Leak: Not applicable
Excepted for the variants 07 to 08 (Applicable in the Chart F3 of the ESCC N°5000 Issue 6).

(g) ……..Excepted for the variants 07 to 08: N/A.
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.2.3 Deviations from Burn-In and Electrical Measurements (Chart III)
(b) Para. 9.8.1 Seal Test Fine Leak: Not applicable
Excepted for the variants 07 to 08 (Applicable in the Chart F3 of the ESCC N°5000 Issue 6).
(c) Para. 9.12, Radiographic Inspection: Not applicable
Excepted for the variants 07 to 08 (Applicable in the Chart F3 of the ESCC N°5000 Issue 6).

Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.2.4 Deviations from Qualification Tests (Chart IV)
(a) Para. 9.2.3, Bond Strenght Test: Not applicable
Excepted for the variants 07 to 0 (Applicable in the Chart F4 Assembly Capability Subgroup of the ESCC N°5000 Issue 6).

(b) Para. 9.2.4, Die Shear Test: Not applicable
Excepted for the variants 07 to 08 (Applicable in the Chart F4 Assembly Capability Subgroup of the ESCC N°5000 Issue 6).

(c) Para. 9.8.1, Seal Test Fine Leak: Not applicable
Excepted for the variants 07 to 08 (Applicable in the Chart F4 Environmental and Mechanical Subgroup of the ESCC N°5000 Issue 6).

(d) Para. 9.15, Constant Acceleration: Not applicable
Excepted for the variants 07 to 08 (Applicable in the Chart F4 Mechanical Subgroup of the ESCC N°5000 Issue 6).
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.2.5 Deviations from Lot Acceptance Tests (Chart V)
(a) Para. 9.8.1, Seal Test Fine Leak: Not applicable
Excepted for the variants 07 to 08 (Applicable in the Chart F4 F4 Environmental and Mechanical Subgroup of the ESCC N°5000 Issue 6).

(b) Para. 9.15, Constant Acceleration: Not applicable
Excepted for the variants 13 to 14 (Applicable in the Chart F4 Mechanical Subgroup of the ESCC N°5000 Issue 6).
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.3.2 Weight
The maximum weight of the diodes specified herein shall be 0.2 grammes for the variants 01 to 03 and 0.13 grammes for variant 04 to 06 and 0.12 grammes for the variants 07 to 08.
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.3.3 Terminal Strength
For the variants 07 to 08 as specified in the ESCC Generic Specification (Applicable in the Chart F4 Assembly Capability Subgroup of the ESCC N°5000 Issue 6).
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.4.1 Case
The case shall be hermetically sealed and have an Aln body with kovar lid for the variants 07 to 08.
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.4.2 Lead Material and Finish
For the variants 07 to 08 leads/terminals as specified in the Table 1a.
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

4.5.1 General
For the variants 07 to 08 the marking shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and as follows.
The information to be marked on the component shall be:
(a) Polarity.
(a) The ESCC qualified components symbol (for ESCC qualified components only).
(b) The ESCC Component Number.

(c) Traceability information.

Justification .

Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE D.C.PARAMETERS

N°	Characteristics	Symbols	MIL-STD-750 Test Method	Test Conditions	Limits		Units
					Min	Max	
1	Breakdown Voltage	$V_{(BR)}$	4021	I_R=-10µA Variants 01 to 06 only	Note1	-	V
2	Forward Voltage	V_{F1}	4011	Pulse Method I_F=200mA, Variants 07 to 8 (Note 2)	-	1.1	V
3	Forward Voltage	V_{F2}	4011	Pulse Method I_F=100mA, Variants 07 to 8 (Note 2)	-	0.98	V
4	Forward Voltage	V_{F3}	4011	Pulse Method I_F=50mA, Variants 07 to 8 (Note 2)	-	0.89	V
5	Forward Voltage	V_{F4}	4011	Pulse Method I_F=1mA, Variants 07 to 8 (Note 2)	-	0.63	V
6	Reverse Current	I_{R1}	4016	DC Method V_R=50V Variant 07 to 08	-	40	nA

Notes

1. See Colum 5 of Table 1(a).
2. For variant 01 to 06 pulsed measurement: tp = 300µs maximum
   For variant 07 t o 08 Pulse Width ≤ 680µs; Duty Cycle ≤ 2%
3. See Colum 6 of Table 1(a).

Justification .

Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE - A.C. PARAMETERS

N°	Characteristics	Symbols	MIL-STD-750 Test Method	Test Conditions	Limits		Units
					Min	Max	
added	Junction Capacitance	C_J		V_R=0Vdc Vsig=50mV(p-p)max f=1MHz **(Note 4)** Variants 07 to 08	-	3	pF
8	Reverse Recovery Time	Trr1	4031 Cond. 'A'	I_F=I_{RM}=10 to 100mA I_{RR}=10% of I_{RM} (Note 1) Variants 01 , 02, 04, 05 Variants 03, 06 **(Note 4 and 5)** Variants 07 to 08	 - - -	 4.0 5.0 9	nS
		Trr2	4031 Cond. 'A'	I_F = 1A; V_R =30V DI/dt=-15A/µS **(Note 4)** Variants 07 to 08	-	20	nS
9	Forward Recovery Time	T_{FR}	4026	I_F = 200mA (Note 1 and 2) Variants 01 to 06 **(Note 4)** Variants 07 to 08	 - -	 10 20	nS
10	Forward Recovery Voltage	V_{FR}	4026	I_F = 200mA (Note 1 and 2) Variants 01 to 06 **(Note 4)** Variants 07 to 08	 - -	 5 5	V
11	Thermal	$Z_{TH(J-C)}$	3101	Variants 01 to 06 only			

	Impedance					
added	Thermal Impedance	$Z_{TH(J-C)}$	3101	Variants 07 to 08 I_H=0.1 to 0.3A t_H=50ms to 10s I_M=10mA t_{md}=100µs **(Note 6)**	Calculate ΔVF, **(see Note 7)**	°C/W

NOTES

4) See appendix A [Agreed Deviations for STMicroelectronics (F)]
5) Test parameter trr1 is not tested but guaranteed by trr2.
6) Performed only during Screening Tests Parameter Drift Values (Initial Measurements), go-no-go.
7) The limits for ΔVF shall be defined by the Manufacturer on every lot in accordance with MIL-STD-750 Method 3101 and shall guarantee the Rth(j-a) limits specified in Maximum Ratings.

Justification .

Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

TABLE 3(a) - ELECTRICAL MEASUREMENTS AT HIGH TEMPERATURES

N°	Characteristics	Symbols	MIL-STD-750 Test Method	Test Conditions	Limits		Units
					Min	Max	
3	Reverse Current	I_{R1}	4016	DC Method V_R= Note1 Variants 01 to 06 Tamb=+150(+0-5)°C Variants 07 to 08 (Note 2) V_R= 50V	- -	100 30	µA

NOTES

2. Read and record measurements shall be performed on a sample of 5 components with 0 failures allowed. Alternatively a 100% inspection may be performed.

Justification .

Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

TABLE 3(b) - ELECTRICAL MEASUREMENTS AT LOW TEMPERATURES

N°	Characteristics	Symbols	MIL-STD-750 Test Method	Test Conditions	Limits		Units
					Min	Max	
1	Forward Voltage	V_{F1}	4011	I_F=500mA (Note 1) Variants 01, 04 I_F=200mA (Note 1) Variants 02, 05 Variants 03, 06 Tamb=-55(+5-0)°C Pulse Method I_F=200mA Variants 07 to 08 (Note 2 and 3)	 - - - -	 1.3 1.1 1.2 1.2	V

NOTES

2. Pulse Width≤ 680µs; Duty Cycle ≤ 2%
3. Read and record measurements shall be performed on a sample of 5 components with 0 failures allowed. Alternatively a 100% inspection may be performed.

TABLE 4 PARAMETER DRIFT VALUES FOR VARIANTS 07 T08

Characteristics	Symbols	Limits			Units
		Drift Value Δ	Absolute		
			Min	Max	
Reverse Current 1	I_{R1}	+/-10 or +/-100%	-	40	nA
Forward Voltage 1	V_{F1}	+/-50	-	1100	mV

Note:

1. Whichever is the greater referred to the initial value.

Justification .

Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

TABLE 5(a) CONDITION FOR HIGH TEMPERATURE REVERSE BIAS BURN-IN

N°	Characteristics	Symbols	Conditions	Units
2	Reverse Voltage Variants 07 to 08	V_R	 60 (80% of V_{RRM})	V
3	Duration Variants 01 to 06 Variants 07 to 08	 t t	 72 ≥48	 Hours Hours

Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

TABLE 5(c) - CONDITIONS FOR POWER BURN-IN AND OPERATING LIFE TESTS
For the variants 07 to 08

N°	Characteristics	Symbols	Test Conditions	Units
1	Ambient Temperature	Tamb	+125 (+0/-5)	°C
2	Junction Temperature	Tj	+175 (+0 -5)	°C
3	Average Output Rectified Current	IO	**Note 2**	A

NOTES:
2. The output current may be adjusted, within their given limit ranges, to attain the specified junction temperature.
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

TABLE 6 - ELECTRICAL MEASUREMENTS AT INTERMEDIATE POINTS AND ONCOMPLETION OF ENDURANCE TESTING

No.	CHARACTERISTICS	SYMBOL	SPEC. AND/OR TEST METHOD	TEST CONDITIONS (Note1 and 2)	CHANGE LIMITS (Δ)	ABSOLUTE MIN.	ABSOLUTE MAX.	UNIT
2	D.C Forward Voltage 1	VF1	As per Table 2	As per Table 2 Variants 01, 04 Variants 02, 05 Variants 03, 06 Variant 07 to 08	 +/- 0.03V +/- 0.03V +/- 0.03V -	 - 0.87 - -	 1.2 1 1.1 1.1	V
4	Reverse Current	IR	As per Table 2	As per Table 2 Variant 01 to 06 Variant 07 to 08	+/- 20nA Or (1) +/-100% -	- -	100 40	nA

NOTES
2. Changes limits are not applicable for the variants 07 to 08.
Justification .
Variant 07: new ST variant introduction with LCC2D package
Variant 08: new ST variant introduction with LCC2D package

APPENDIX 'B'
AGREED DEVIATIONS FOR STMICROELECTRONICS (F)

ITEMS AFFECTED	DESCRIPTION OF DEVIATIONS
Deviations from Production Control-Chart F2	Internal Visual Inspection: Wedge bonds equal to 1.1 wire diameter are acceptable for bonding with a V-Groove tool.
Deviations from Production Control-Chart F2	Special In-process Control Internal Visual Inspection. For CCP packages the criteria specified for voids in the filet and minimum die mounting material around the visible die perimeter for die mounting defects may be omitted providing that a radiographic inspection to verify the die-attach process is performed on a sample basis in accordance with STMicroelectronics procedure 7050651.
Deviations from Screening Tests- Chart F3	Solderability is not applicable unless otherwise stipulated in the Purchase Order.
Deviations from Room Temperature Electrical	Test parameter the reverse recovery time trr1 is not tested but guaranteed by trr2. AC characteristics (t_{rr2}, C, t_{fr}, V_{fr}), may be considered guaranteed but not tested if

Measurements	successful pilot lot testing has been performed in accordance with STMicroelectronics procedure 7188211 on the wafer lot, which includes AC characteristic measurements per the Detail Specification. A summary of the pilot lot testing shall be provided if required by the Purchase Order.
Deviations from High and Low Temperature Electrical Measurements	Low temperature characteristic I_{R2} may be considered guaranteed but not tested if successful pilot lot testing has been performed in accordance with STMicroelectronics procedure 7188211 on the wafer lot, which includes low temperature characteristic measurements per the Detail Specification. A summary of the pilot lot testing shall be provided if required by the Purchase Order.

Justification .

Variant 07: new ST variant introduction with LCC2D package

Variant 08: new ST variant introduction with LCC2D package