

PRODUCT CHANGE NOTICE

1. TITLE UT04VS33P, UT04VS50P – V _{TH_VIN} ELECTRICAL PARAMETERS AND TOL PIN DESCRIPTION CHANGE FOR YIELD ENHANCEMENT		2. DOCUMENT NUMBER SPO-2023-PCN-001	
		3. DATE (Year, Month, Date) 2023 APRIL 25	
4. MANUFACTURER NAME AND ADDRESS FRONTGRADE TECHNOLOGIES 4350 CENTENNIAL BLVD COLORADO SPRINGS, CLORADOO 80907-3486		5. MANUFACTURER POINT OF CONTACT NAME Bruce Massey	
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8. CAGE CODE 65342	9. EFFECTIVE DATE 2023 April 25	10. PRODUCT IDENTIFICATION CODE YB11, YB10	11. BASE PART UT04VS33P, UT04VS50P
12. BLANK		13. SMD NUMBER 5962-13206	14. DEVICE TYPE DESIGNATOR 01, 02
		15. RHA LEVELS R, F	16. QML LEVEL Q, V
		17. NON QML LEVEL Prototype, HiRel	18. GIDEP GB4-C-23-0003

19. PRODUCT CHANGE

There has been a specification change to the V_{TH_VIN} electrical parameters and TOL Pin Description for yield enhancement. This change applies to both the UT04VS33P and UT04VS50P 4-channel Voltage Supervisor-(VS) products, and affects both the individual product Data Sheets (DS) and the shared product SMD document.

Previous (Old) V_{TH_VIN} and TOL PIN Parameter Specifications:

1) V_{TH_VIN}, DS, p.7:

DC Electrical Characteristics

(V_{DD}=3.0V to 3.6V; -55°C ≤ T_C ≤ +125°C)

Symbol	Parameter	Condition	MIN	MAX	Unit
Analog Inputs					
V _{TH_VIN}	Analog threshold under-voltage case	3.3V threshold, TOL= 0	2.97	3.135	V
		3.3V threshold, TOL= 1	2.805	2.970	V
		2.5V threshold, TOL= 0	2.25	2.375	V
		2.5V threshold, TOL= 1	2.125	2.250	V
		1.8V threshold, TOL= 0	1.620	1.710	V
		1.8V threshold, TOL= 1	1.530	1.620	V
		1.5V threshold, TOL= 0	1.350	1.425	V
		1.5V threshold, TOL= 1	1.275	1.350	V
		1.2V threshold, TOL= 0	1.080	1.140	V
		1.2V threshold, TOL= 1	1.020	1.080	V
		1.0V threshold, TOL= 0	0.90	0.950	V
		1.0V threshold, TOL= 1	0.85	0.915	V

2) Pin Descriptions, DS, p.4

Number	Pin	Type	Description
9	TOL	Digital Input	Threshold tolerance select sets the accuracy of the threshold to 5% below the nominal value by connecting TOL to logic 0. Connecting TOL to logic 1 sets the threshold voltage to 10% below the nominal value.

3) Equation for Under-voltage Preset Mode Thresholds Including Process Variation, DS, p.10

$$V_{th_actual(nom)} = V_{thresh_nominal} * [1 - 5\% * (1 + TOL) - 2.5\%]$$

Updated (New) V_{TH_VIN} and TOL PIN Parameter Specifications:

1) V_{TH_VIN}, DS, p.7:

DC Electrical Characteristics

(V_{DD}=3.0V to 3.6V; -55°C ≤ T_C ≤ +125°C)

Symbol	Parameter	Condition	MIN	MAX	Unit
Analog Inputs					
V _{TH_VIN}	Analog threshold under-voltage case V _{TH_VIN} range (%): TOL=0: MIN: -12%/MAX: -3% TOL=1: MIN: -17%/MAX: -8%	3.3V threshold, TOL= 0	2.90	3.20	V
		3.3V threshold, TOL= 1	2.75	3.03	V
		2.5V threshold, TOL= 0	2.20	2.42	V
		2.5V threshold, TOL= 1	2.08	2.30	V
		1.8V threshold, TOL= 0	1.58	1.75	V
		1.8V threshold, TOL= 1	1.50	1.65	V
		1.5V threshold, TOL= 0	1.32	1.45	V
		1.5V threshold, TOL= 1	1.25	1.38	V
		1.2V threshold, TOL= 0	1.05	1.16	V
		1.2V threshold, TOL= 1	1.00	1.10	V
		1.0V threshold, TOL= 0	0.88	0.967	V
1.0V threshold, TOL= 1	0.83	0.932	V		

2) Pin Descriptions, DS, p.4

Number	Pin	Type	Description
9	TOL	Digital Input	Threshold tolerance select sets the accuracy of the threshold to 3% below the nominal value by connecting TOL to logic 0. Connecting TOL to logic 1 sets the threshold voltage to 8% below the nominal value.

3) Equation for Under-voltage Preset Mode Thresholds Including Process Variation, DS, p.10

$$V_{th_actual(nom)} = V_{thresh_nominal} * [1 - 3\% * (1 + (TOL*(5/3))) - 2.5\%]$$

The following Frontgrade product DS + SMD document links are provided here for reference:

<https://frontgrade.com/sites/default/files/documents/Datasheet-UT04VS33P.pdf>

UT04VS33P Voltage Supervisor
p.7

<https://frontgrade.com/sites/default/files/documents/Datasheet-UT04VS50P.pdf>

UT04VS50P Voltage Supervisor
p.7

<https://landandmaritimeapps.dla.mil/Downloads/MilSpec/Smd/13206.pdf>

MICROCIRCUIT, DIGITAL-LINEAR, VOLTAGE SUPERVISOR, MONOLITHIC SILICON
5962-13206

Device type Generic number Circuit function

01 UT04VS33P Radiation hardened, 3.3 V voltage supervisor

02 UT04VS50P Radiation hardened, 5.0 V voltage supervisor

p.7

Table 1. Affected Part Numbers

SMD Number	Part Number
5962R1320601QXC	UT04VS33PQXC
5962F1320601QXC	UT04VS33PQXC
5962R1320601Q9A	UT04VS33P-Q-DIE
5962F1320601Q9A	UT04VS33P-Q-DIE
5962R1320601VXC	UT04VS33PVXC
5962F1320601VXC	UT04VS33PVXC
5962R1320601V9A	UT04VS33P-V-DIE
5962F1320601V9A	UT04VS33P-V-DIE
5962R1320602QXC	UT04VS50PQXC
5962F1320602QXC	UT04VS50PQXC
5962R1320602Q9A	UT04VS50P-Q-DIE
5962F1320602Q9A	UT04VS50P-Q-DIE
5962R1320602VXC	UT04VS50PVXC
5962F1320602VXC	UT04VS50PVXC
5962R1320602V9A	UT04VS50P-V-DIE
5962F1320602V9A	UT04VS50P-V-DIE

20. DISPOSITIONARY RECOMMENDATION:

CHECK &
USE AS IS

CONTACT
MANUFACTURER

REMOVE &
REPLACE

CORRECT &
USE AS SPECIFIED