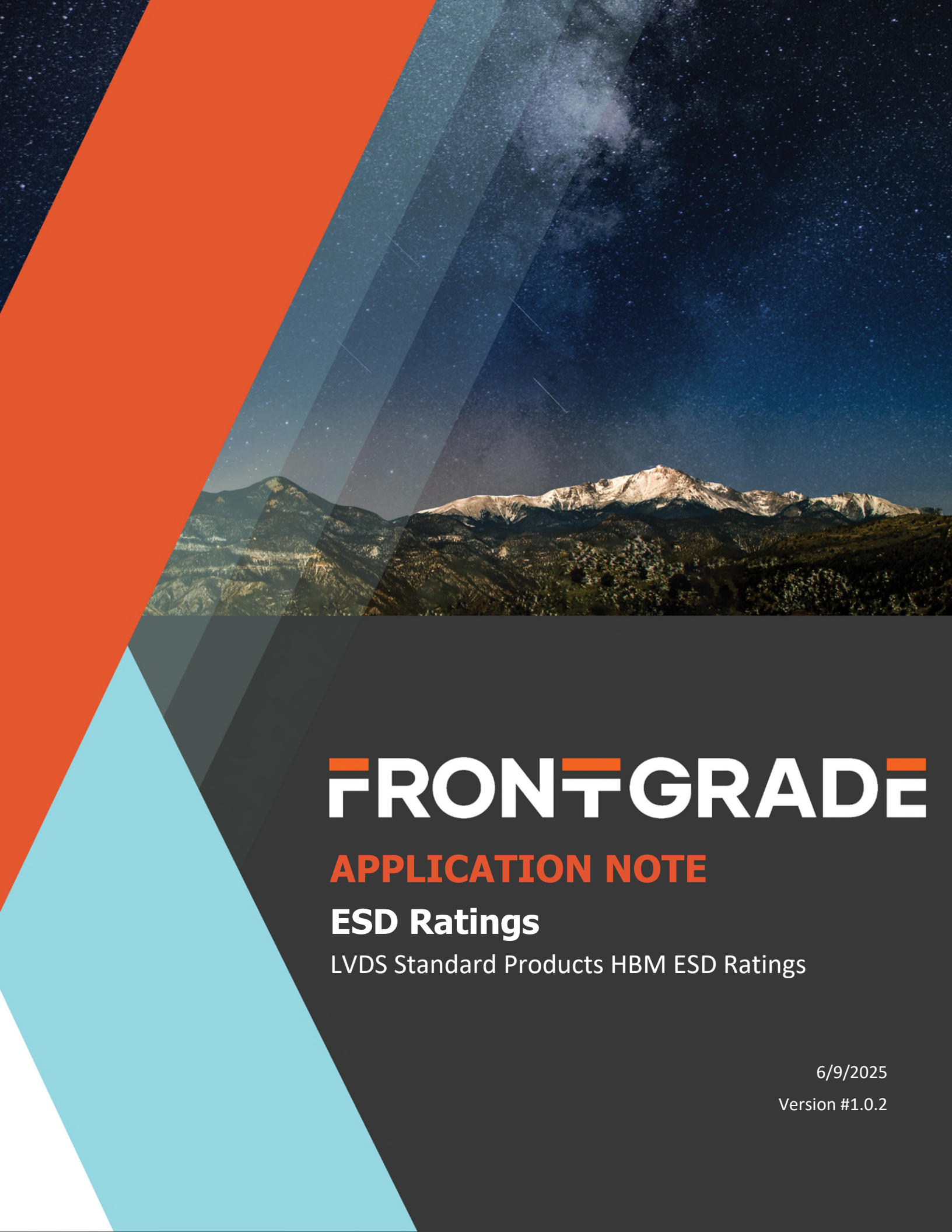




FRONTGRADE

APPLICATION NOTE

ESD Ratings

LVDS Standard Products HBM ESD Ratings

6/9/2025

Version #1.0.2

Table 1: Cross Reference of Applicable Products

Product Name	UT Part #	SMD #	Device Type	Internal PIC #
3.3V Quad TX Driver	UT54LVDS031LV/E	5962-98651	02, 03, 04, 05	WD03, WD07, WD28, WD30
3.3V Quad RX Receiver	UT54LVDS032LV/E	5962-98652	02, 03, 04, 05	WD04, WD08, WD29, WD31
3.3v Quad RX Receiver w/ RTERM	UT54LVDS032LVT	5962-04201	01, 02	WD06, WD10
3.3V Quad Bus-LVDS TX Driver	UT54LVDM031LV	5962-06201	01	WD21
3.3V Dual Bus-LVDS RX Receiver & TX Driver	UT54LVDM055LV	5962-06202	01	WD22
3.3V Quad Bus-LVDS 2x2 Crosspoint Switch	UT54LVDM228	5962-01537	01	WD15, WD16
3.3V Octal Bus-LVDS Repeater	UT54LVDM328	5962-01536	01	WD17, WD18
3.3V Octal LVDS Repeater	UT54LVDS328	5962-20219	01	WD45
2.5V 1.25 Gbps LVDS Repeater	UT54LVDS454	5962-21211	01, 02	WQ06
3.3V 21:3 LVDS Serializer	UT54LVDS217	5962-01534	01, 02	WD11, WD13
3.3V 3:21 LVDS Deserializer	UT54LVDS218	5962-01535	01, 02	WD12, WD14
5.0V Quad TX Driver †	UT54LVDS031	5962-95833	02	JR05, JR08
5.0V Quad RX Receiver †	UT54LVDS032	5962-95834	02	JR06, JR09
5.0V Quad TX Driver w/ Cold Spare †	UT54LVDS031	5962-95833	03	JR10
5.0V Quad RX Receiver w/ Cold Spare †	UT54LVDS032	5962-95834	03	JR11

Notes:

1. † Not recommended for new designs

Overview

One of the primary concerns surrounding integrated circuits (ICs) that provide off-board interfacing capabilities is Electrostatic Discharge (ESD) sensitivity. Frontgrade Colorado Springs has tested and tabulated Human Body Model (HBM) ESD ratings for all of our LVDS products. This Application Note summarizes FRONTGRADE LVDS product HBM ESD capability.

HBM ESD Ratings

Table 2 summarizes the HBM ESD ratings for Frontgrade LVDS devices. All FrontgradeColorado Springs LVDS devices have ESD testing performed as part of the Qualification process. The HBM ESD test results determine the classification of each device based on the lowest passing pin voltage for each part type.

Table 2. Summary of HBM ESD Ratings for Frontgrade LVDS Devices ¹

Product Name	UT Part #	SMD #	Device Type	PIC #	ESD Rating (V)	ESD Class
3.3V Quad TX Driver	UT54LVDS031LV/E	5962-98651	02, 04	WD03, WD28	1100	1C
3.3V Quad TX Driver	UT54LVDS031LV/E	5962-98651	03, 05	WD07, WD30	1000	1C
3.3V Quad RX Receiver	UT54LVDS032LV/E	5962-98652	02, 04	WD04, WD29	1200	1C
3.3V Quad RX Receiver	UT54LVDS032LV/E	5962-98652	03, 05	WD08, WD31	1000	1C
3.3V Quad RX Receiver w/ RTERM	UT54LVDS032LVT	5962-04201	01	WD06	1200	1C
3.3V Quad RX Receiver w/ RTERM	UT54LVDS032LVT	5962-04201	02	WD10	1000	1C
3.3V Quad Bus-LVDS TX Driver	UT54LVDM031LV	5962-06201	01	WD21	1000	1C
3.3V Dual Bus-LVDS RX Receiver & TX Driver	UT54LVDM055LV	5962-06202	01	WD22	1000	1C
3.3V Quad Bus-LVDS 2x2 Crosspoint Switch	UT54LVDM228	5962-01537	01	WD15, WD16	1250	1C
3.3V Octal Bus-LVDS Repeater	UT54LVDM328	5962-01536	01	WD17, WD18	1250	1C
3.3V Octal LVDS Repeater	UT54LVDS328	5962-20219	01	WD45	1200	1C
2.5V 1.25 Gbps LVDS Repeater	UT54LVDS454	5962-21211	01, 02	WQ06	1000	1C
3.3V 21:3 LVDS Serializer	UT54LVDS217	5962-01534	01, 02	WD11, WD13	750	1B
3.3V 3:21 LVDS Deserializer	UT54LVDS218	5962-01535	01, 02	WD12, WD14	1000	1C
5.0V Quad TX Driver †	UT54LVDS031	5962-95833	02	JR05, JR08	500	1B
5.0V Quad RX Receiver †	UT54LVDS032	5962-95834	02	JR06, JR09	900	1B
5.0V Quad TX Driver w/ Cold Spare †	UT54LVDS031	5962-95833	03	JR10	250	1A
5.0V Quad RX Receiver w/ Cold Spare †	UT54LVDS032	5962-95834	03	JR11	250	1A

Notes:

1. ESD Classification per MIL-STD-883 method 3015.9

Revision History

Date	Revision #	Author	Change Description	Page #
08/05/2008	0.0.1		Application Note – Initial revision	
08/05/2021	1.0.1		Application Note – Update 1: HBM ESD Voltage and Class Corrections + New LVDS Component Additions	
06/09/2025	1.0.2	MJL	Converted to FG format. Added note to table 2	all

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