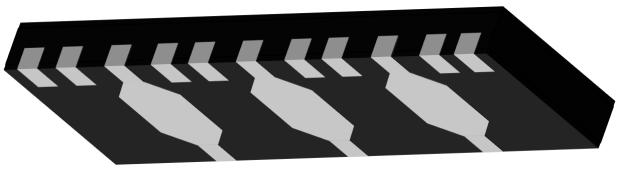
FutureWafer Evolution

VM8803

Extra Low Capacitance TVS Diode Array

Applications

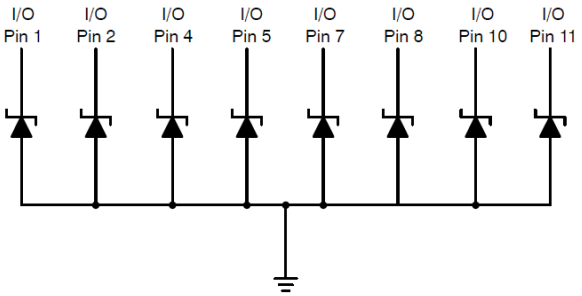
- Set Top Box
- Wireless Systems
- Display Port
- HDMI 2.0/2.1
- 10/100/1000 Ethernet



Feature List

- With TVS Diode
- ESD Protection 4 Pairs High Speed Data
- Low Clamping Voltage<12v @ IPP=8A
- 90 Watts Peak Pulse Power Per Line(tp=8/20uS)
- Extra Low Capacitance(0.35pf Max,I/O to GND)

DFN 5515-14L



Pin 3, 6, 9, 12, 13, 14

IEC Compatibility

- EN61000-4
- 61000-4-2(ESD):Level 4,Contact:>±30KV,Air::>±30KV
- 61000-4-4(EFT):40A-5/50ns
- 61000-4-5(Lighting):8A,8/20us

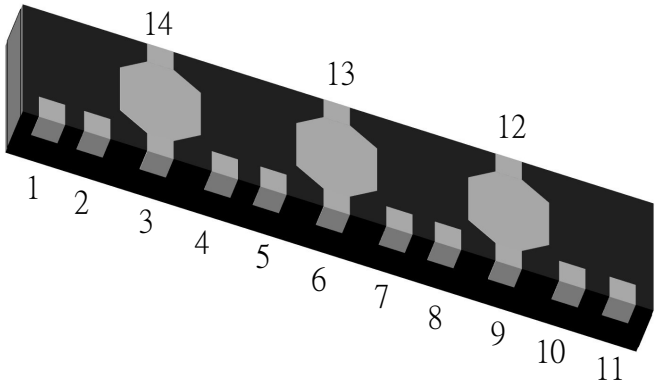
Mechanical Characteristics

- Molded JEDEC Package
  - DFN 5515-14L
- Packing: Tape and Reel
- Flammability rating UL 94V-0
- Halogen Free
- JEDEC MSL Classification :Level 1

Device Characteristics

Maximum Ratings@25℃ Unless Otherwise Specified

Parameter	Symbol	Value	Units
Peak Pulse Power (tp=8/20us)	P_{PP}	90	Watts
Operating Temperature	T_J	-55 ~150	°C
Storage Temperature	T_{STG}		



Pin	Identification
1,2,4,5,7,8,10,11	Input lines
3,6,9,12,13,14	Ground

Electrical Characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}	-	-	-	3.3	V
Breakdown Voltage	V_{BR}	I_T = 1mA	5.5	-	8.5	
Snap Back Voltage	V_{SB}	I_{SB} = 25mA	-	-	6.0	
Clamping Voltage	V_C	I_{PP} = 1A,tp = 8/20us	-	-	6.0	
		I_{PP} = 8A,tp = 8/20us	-	-	12	
Reverse Leakage Current	I_R	V_{RWM} = 3.3V	-	-	0.9	uA
Junction Capacitance	C_J	I/O Pins and GND Vdc = 0V,f = 1MHz	-	-	0.65	pf
		I/O Pins Vdc = 0V,f = 1MHz	-	-	0.35	

Rating and Characteristic Curve

Fig. 1 Non-repetitive Peak pulse power V.S pulse time

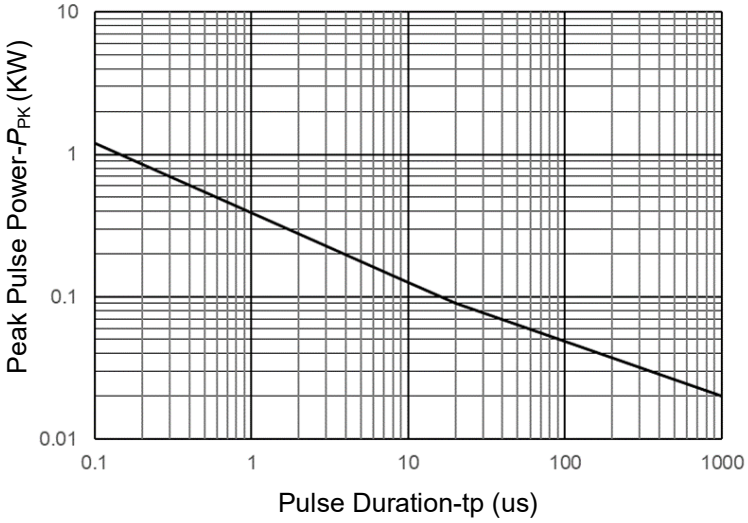


Fig. 2 Power Derating Curve

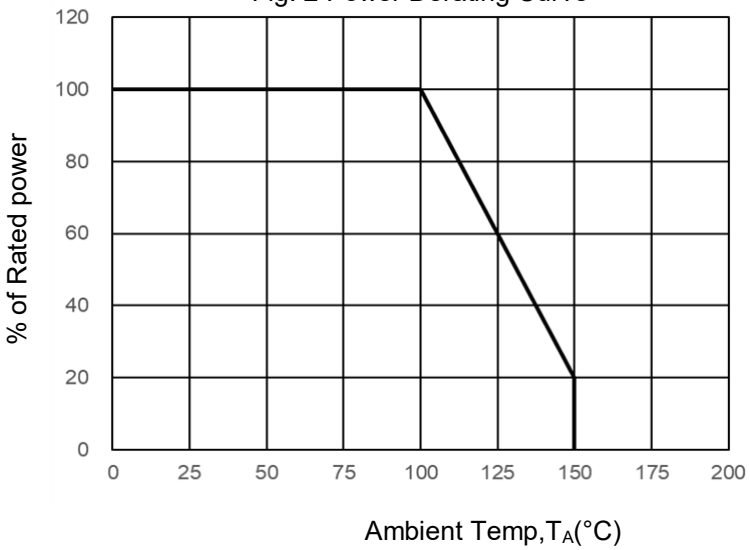


Fig. 3 Test Current Vs Breakdown Voltage

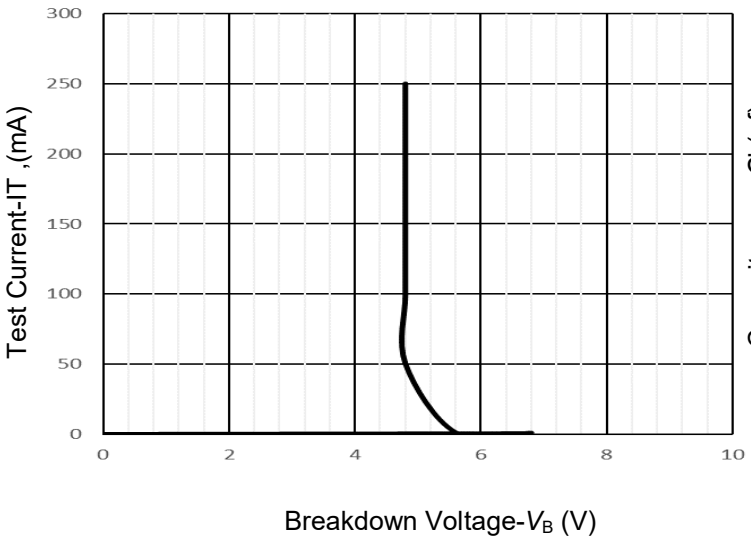
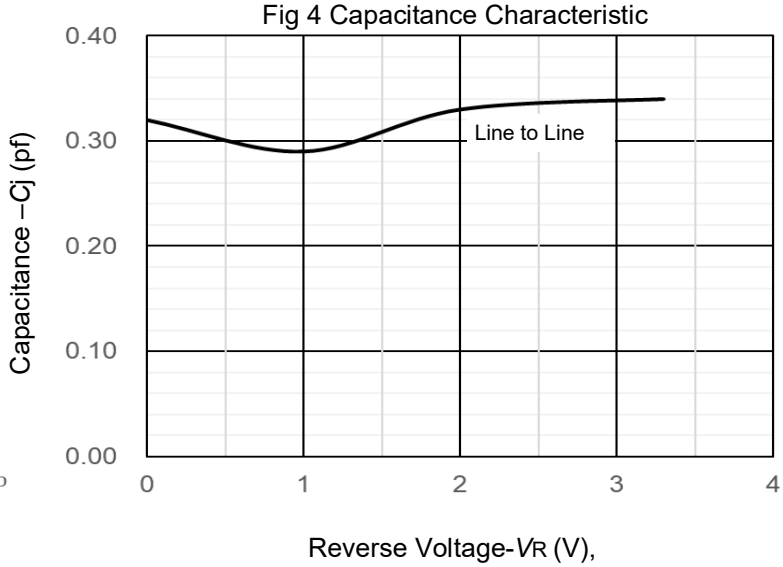


Fig 4 Capacitance Characteristic



Rating and Characteristic Curve

Fig. 5 Pulse Waveform

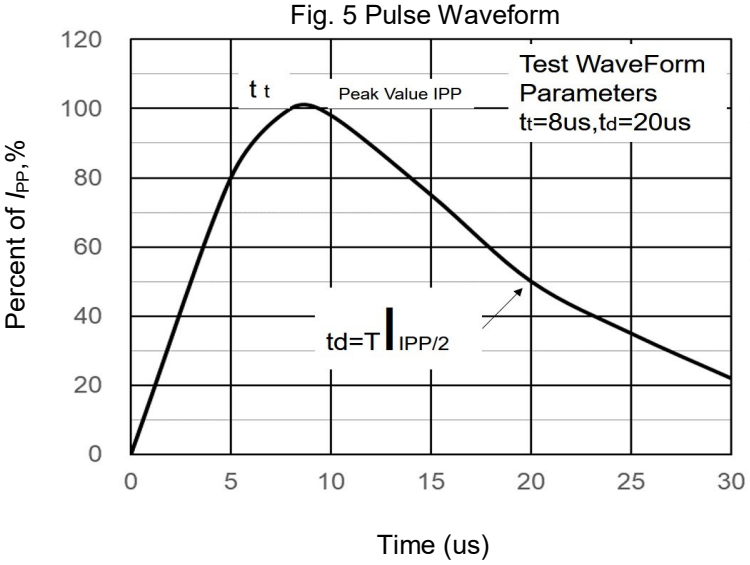
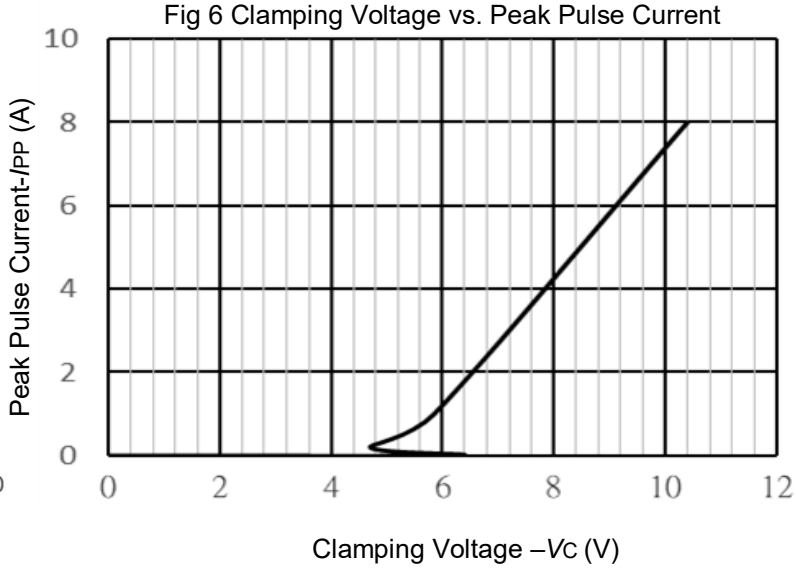


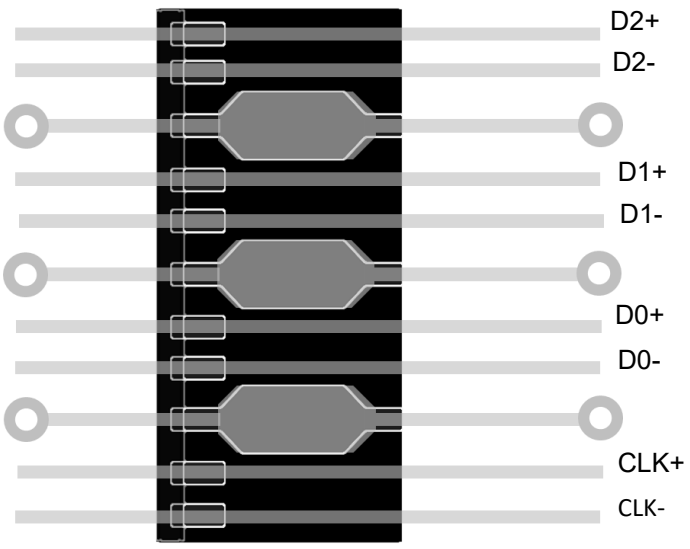
Fig 6 Clamping Voltage vs. Peak Pulse Current



Application

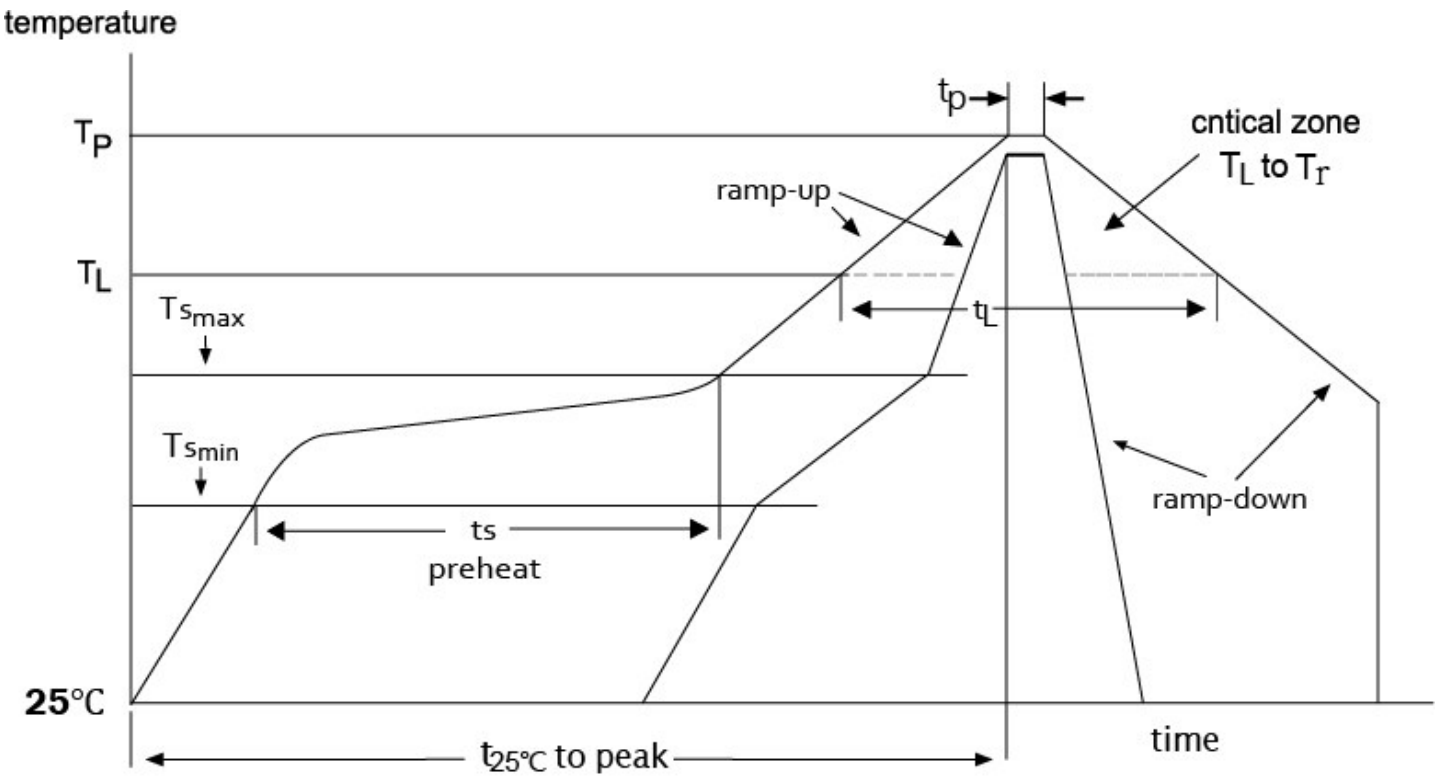
HDMI Layout Diagram

I/O pins 1,2,4,5,7,8,and 11 are to be used for high speed differential TMDS lines. The VM8803 was designed specifically for the HDMI 2.0 application. The I/O pins for TMDS lines have a lower breakdown voltage and extra low capacitance to meet 10G high speed data lines.

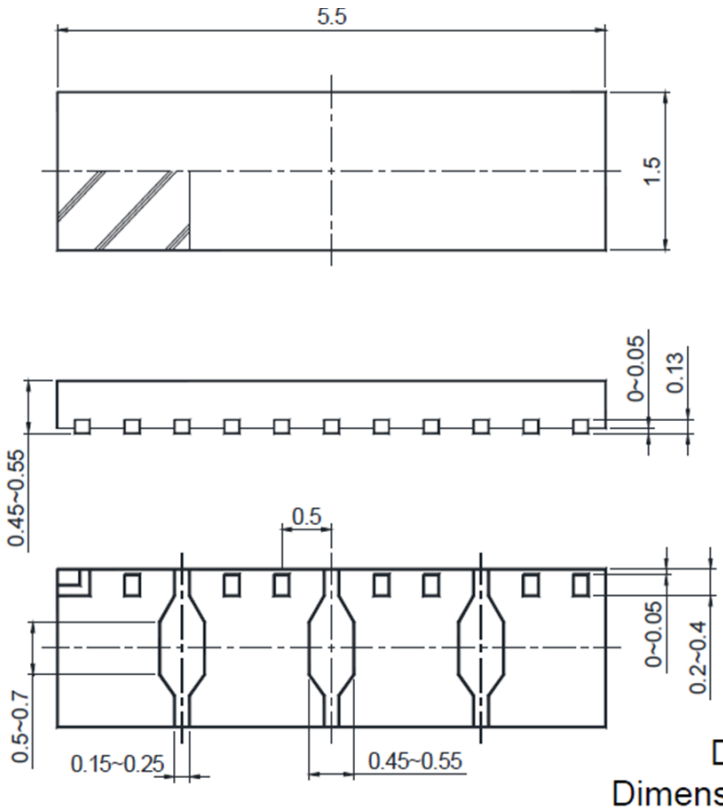


Soldering Parameters

Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (Tsmax to Tp)	3 °C/s maximum	3 °C/s maximum
Preheat		
Temperature minimum (Tsmin)	100 °C	150 °C
Temperature maximum (Tsmax)	150 °C	200 °C
Time (tsmin to tsmax)	60 s to 120 s	60 s to 180 s
Time maintained above		
Temperature (TL)	183 °C	217 °C
Time (tL)	60 s to 150 s	60 s to 150 s
Peak/classificationtemperature(T)	235 °C	260 °C
Number of allowed reflow cycles	3	3
Time within 5 °C of actual peak temperature (tp)	10 s to 30 s	20 s to 40 s
Ramp-down rate	6 °C/s maximum	6 °C/s maximum
Time 25 °C to peak temperature	6 minutes maximum	8 minutes maximum

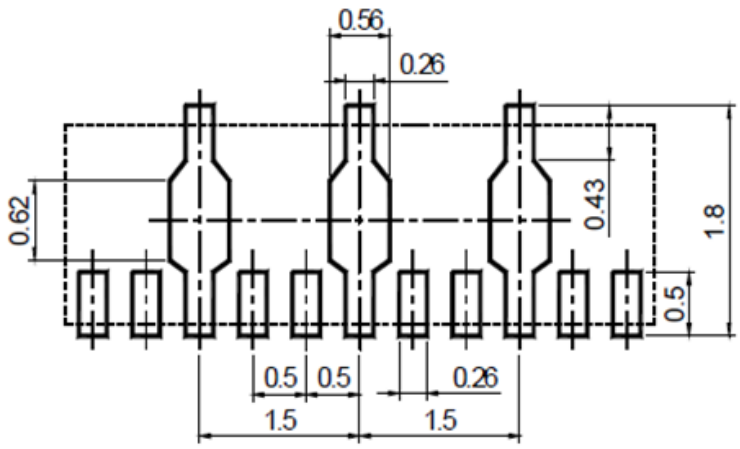


Package information



DFN5515-14
Dimensions in millimeters

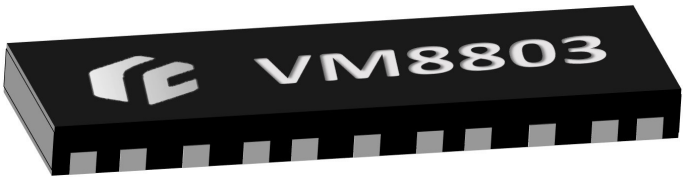
Suggest Pad Layout



Unit:mm

Ordering information

Marking Code



Part No.	Material	Marking	Type	Reel size	MOQ/Reel
VM8803	Green	VM8803	T/R	7 inch	3,000PCS/Reel

History

Version	Date	File No.	Recording	Basis
A	03-Jan-2018	F118011	New Create	Market
B	17-Aug-2019	F118011	Update Company Information	System
2.0	03-Mar-2021	F118011	Update Version	System

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