VS6555

Ultra small reflowable VGA camera module

Data Brief

Features

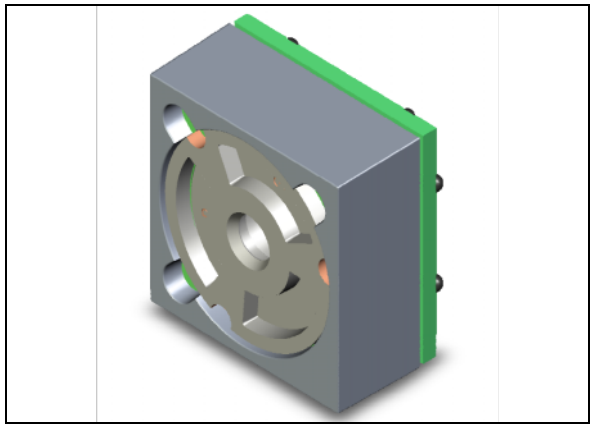
- VGA resolution sensor (640 x 480)
- Electrical and logical interface fully SMIA compliant
- Video data interface - CCP2.0
- Command interface - CCI
- 2.8 V/1.8 V operation
- On-board 10-bit ADC
- Small physical size (2.5mm height)
- Integral EMC shielding
- Ultra low power standby mode
- On-chip PLL
- Lead free reflowable module

Applications

- Mobile phone
- PDA
- Videophone

Description

The VS6555 is an ultra small reflowable VGA camera module for use across a range of mobile phone handsets and accessories. It is primarily designed to be used as a secondary camera for video conferencing applications, but could equally be used as a primary camera. The camera silicon device is SMIA class 0 profile 0 compliant and is capable of generating raw bayer VGA images up to 30 fps. The VS6555 supports the CCI control and CCP2.0 data interfaces



As different phone platforms have different baseband processors with varying capabilities, it may not be possible for all phones to support the associated image processing algorithms. Where the baseband cannot support this processing load, a separate hardware accelerator (STV0984 or STV0986) device can be incorporated in the phone system to run the algorithms in hardware. The STV0984 and STV0986 processors can support 2 cameras.

The module design is optimized to provide an ultra small footprint and height, and is designed to be reflowable at lead-free solder profiles. The product is lead free.

The lens design is optimized for video conferencing and maintains its performance even after the high temperatures of lead-free reflow.

VS6555 offers an ultra low power consumption hardware standby mode consuming less than 30 µW.

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Figure 1. Application diagram

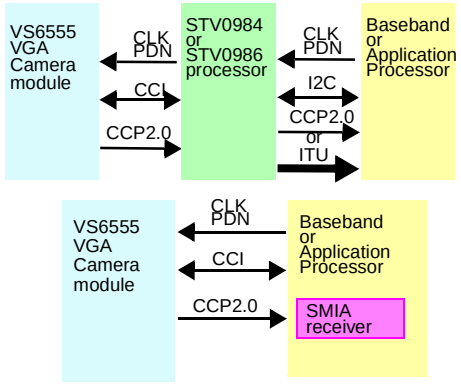


Figure 2. Block diagram

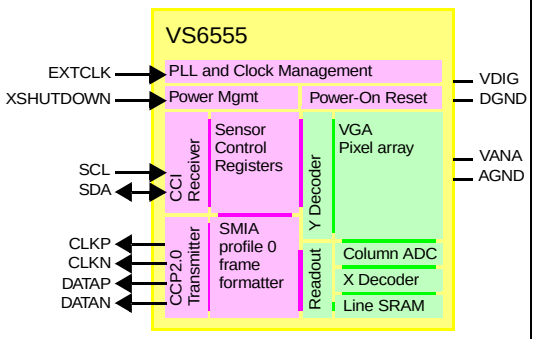


Table 1. Technical specifications

Parameter	Values
Pixel array	VGA (640 x 480)
Sensor technology	0.13 µm HCMOS9i
Pixel size	2.2 µm x 2.2 µm
Exposure control	+8 dB
Analogue gain	+24 dB (max)
Dynamic range	61 dB
Signal to noise	34 dB (@ 100 lux)
Minimum illumination	< 7lux
Supply voltage	Analogue: 2.4V to 2.9V Digital: 1.8V ± 0.1V
Average power consumption @ 30fps	<60 mW
Module size (XYZ) max	4.5 mm x 4.5 mm x 2.5 mm
Lens HFOV (typical)	66°
Lens DFOV (typical)	78°
F number	3.2
Lens SFR	On axis 45% (typ) Horizontal field (70%) 25% (typical)
Lens TV distortion	< |1%|
Relative illumination	> 45% (typ)
System connectivity	Lead free reflowable BGA
Storage temperature	[-40; +85]°C
Functional operating temperature	[-30; +70]°C
Normal operating temperature	[-25; +55]°C
Optimal operating temperature	[+5; +30]°C

Figure 3. Module outline drawing (1/3)

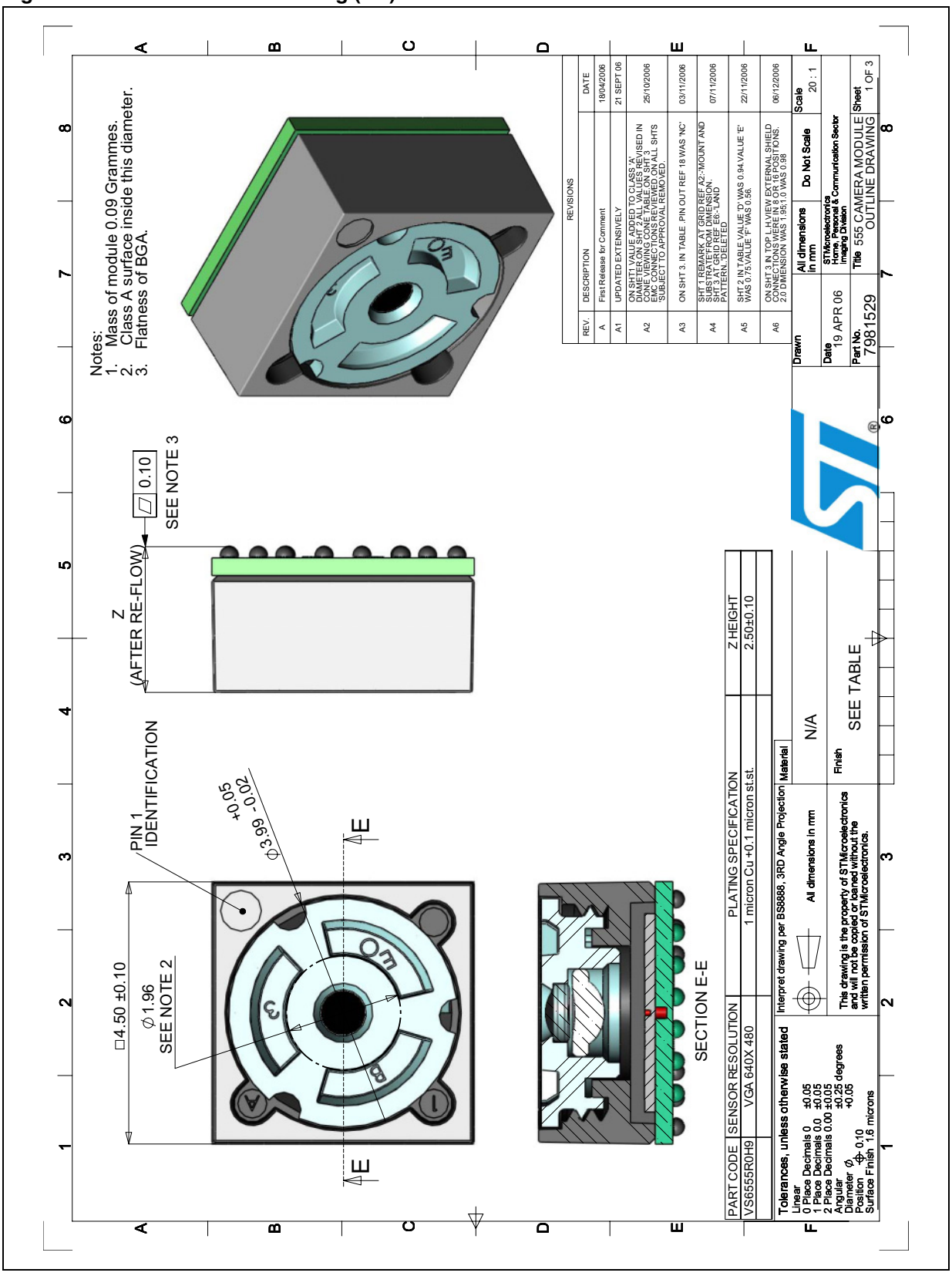


Figure 4. Module outline drawing (2/3)

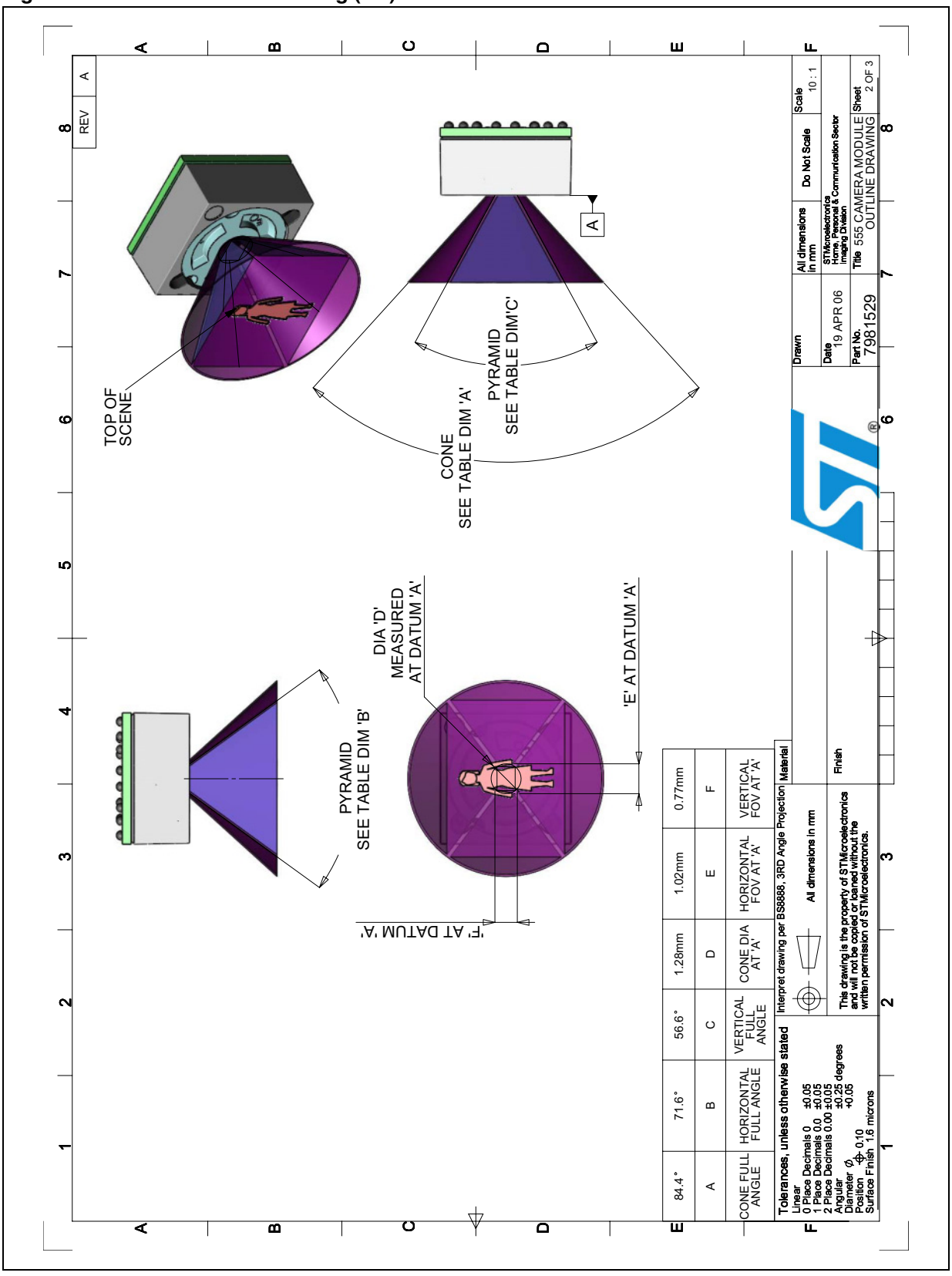
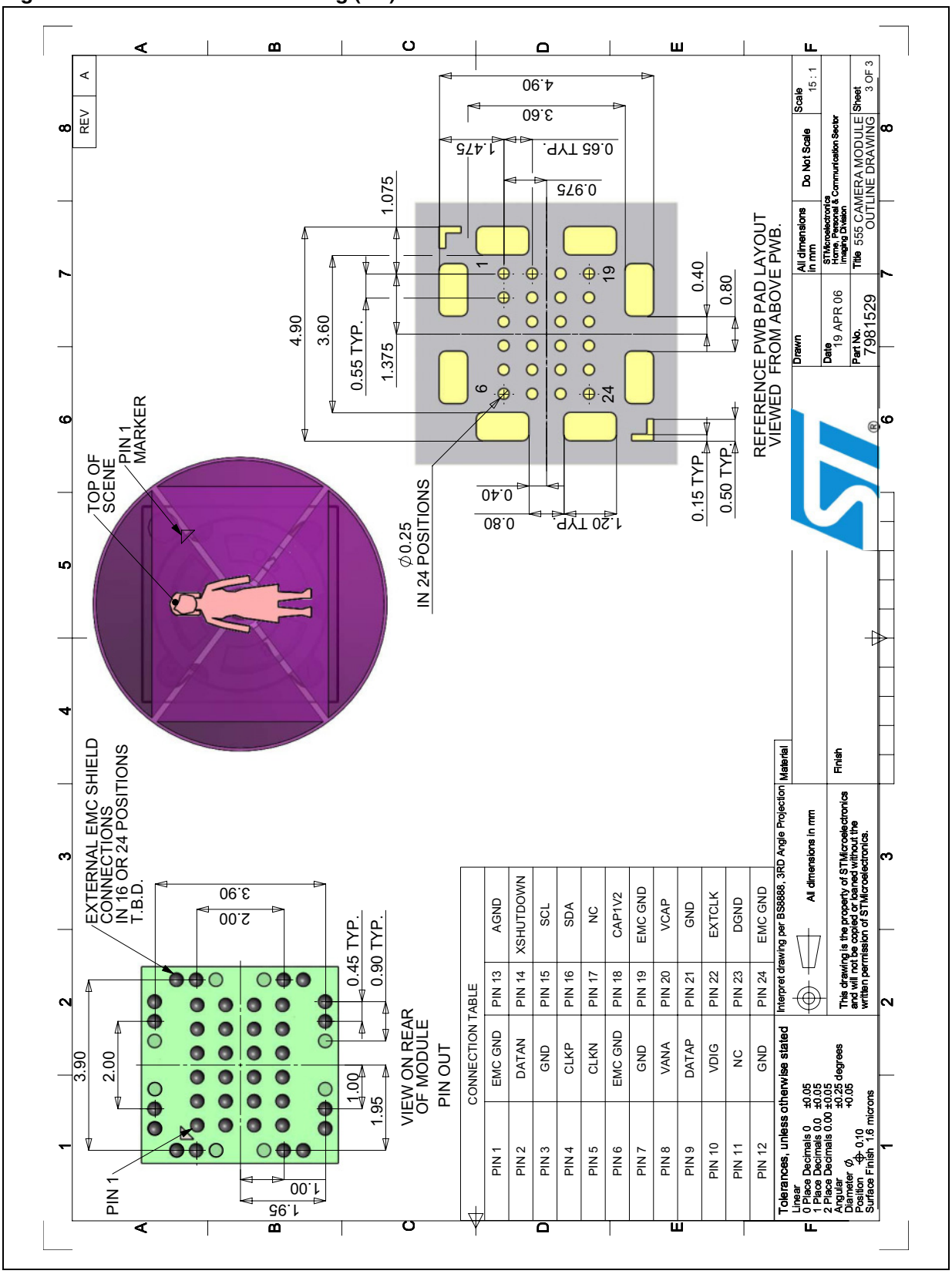


Figure 5. Module outline drawing (3/3)



Ordering information

Table 2. Order codes

Part number	Package	Packing
VS6555R0H9/TR	Lead-free reflowable module.	Tape and Reel

Revision history

Table 3. Document revision history

Date	Revision	Changes
18-Jan-2007	1	Initial release.

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