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# FMS6151

## Ultra-Portable Video Filter Driver

### Features

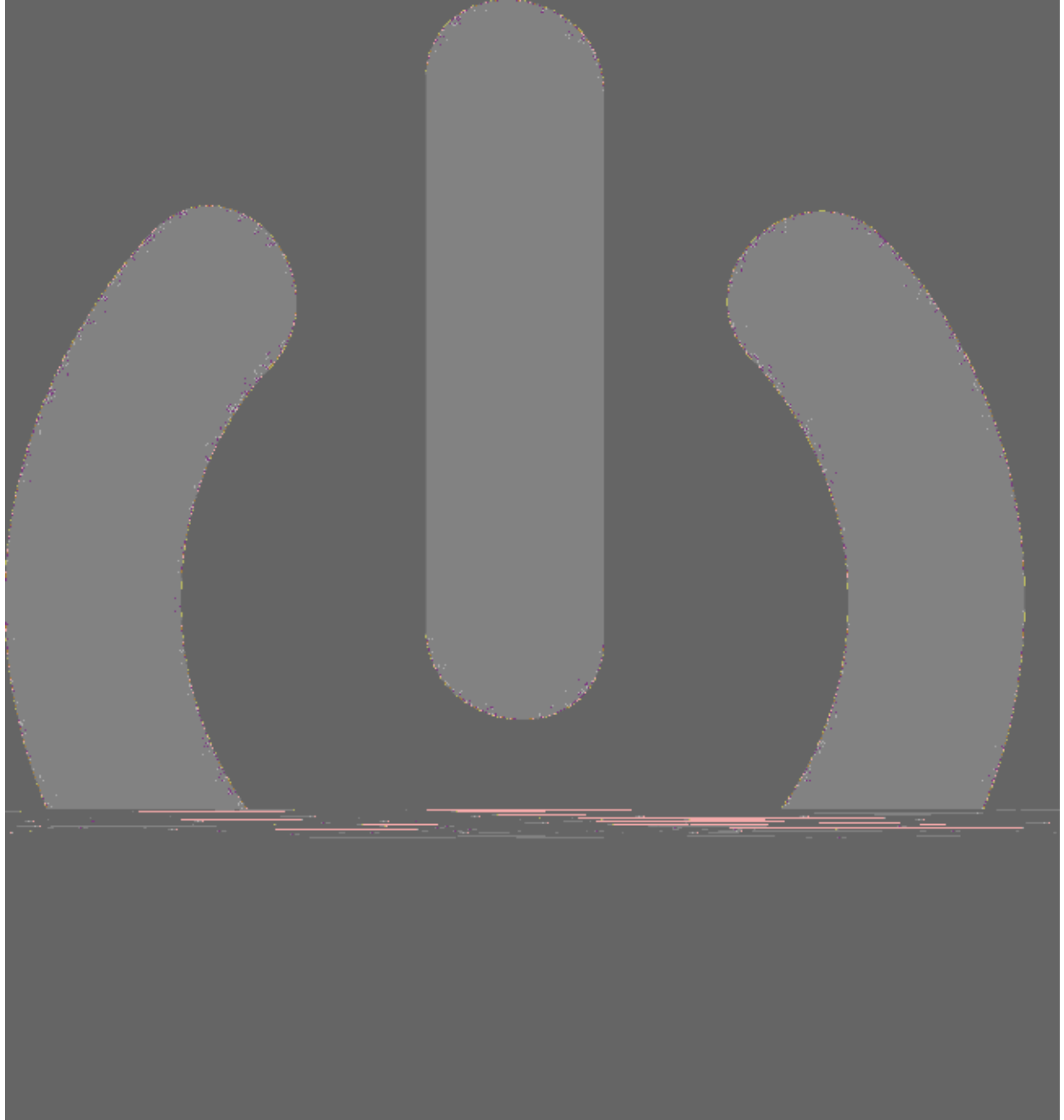
- 5th-Order 8MHz (SD) Filter
- Power Down to 25nA
- DC-Coupled Input
- AC- or DC-Coupled Output
- DC-Coupled Output Eliminates AC-Coupling Cap
- SAG Correction Reduces Size of AC-Coupling Cap
- Fixed Gain of 6dB
- Small, Lead-Free, MicroPak™ Packaging

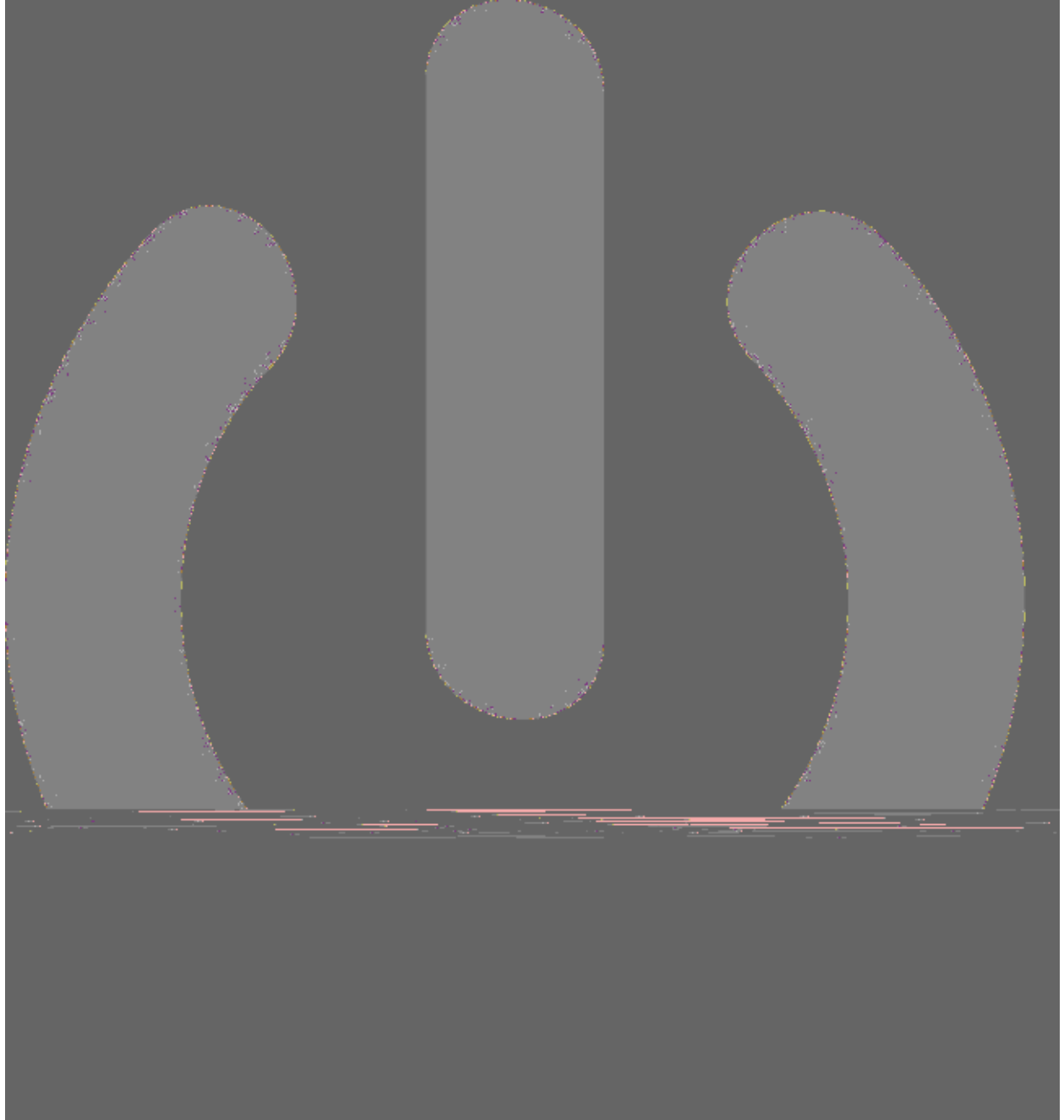
### Applications

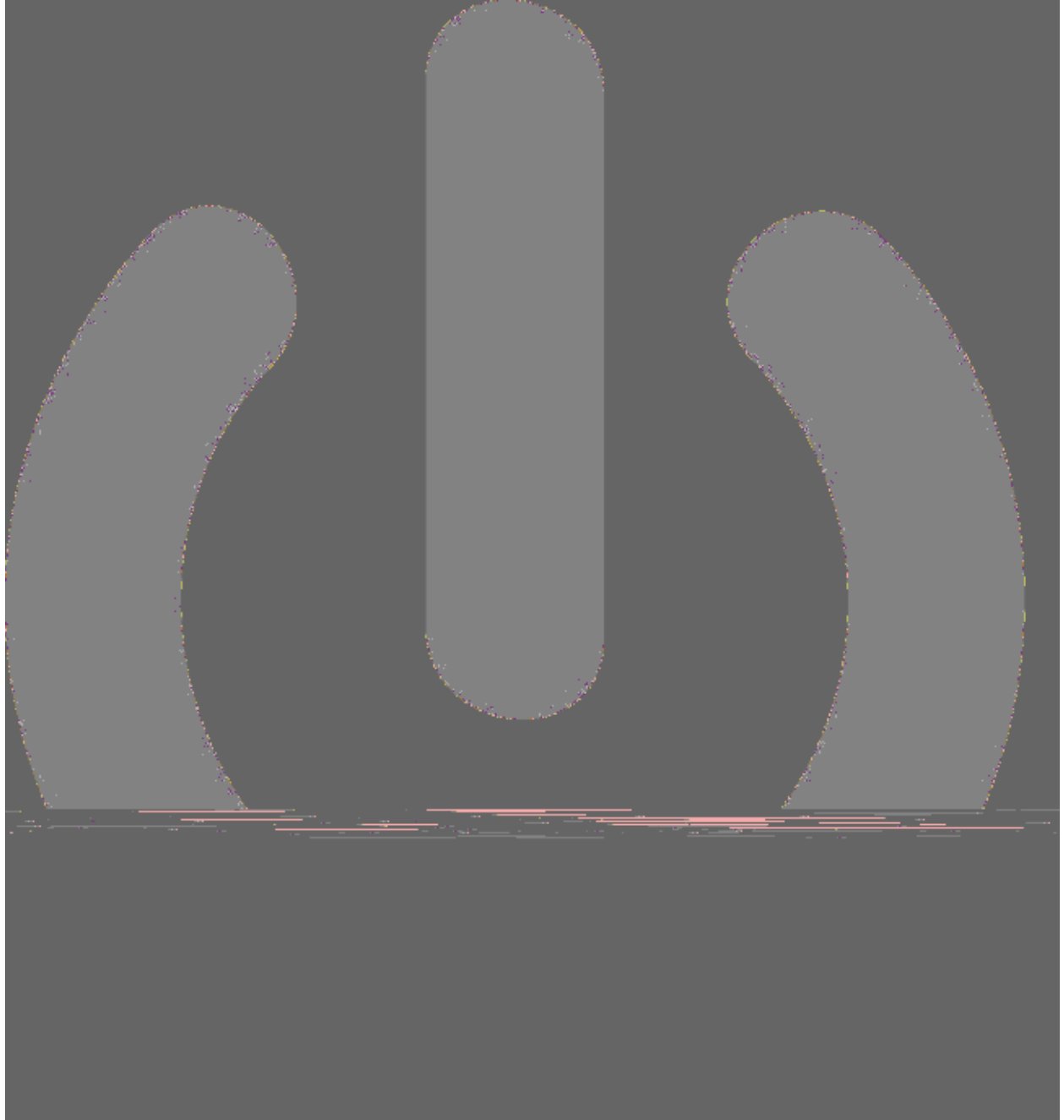
- Digital Still Cameras
- Camera Phones
- Personal Digital Assistants
- Set Top Boxes
- Digital Video Recorders

### Description

The FMS6151 is a 5th-order 8MHz (SD) video filter driver. It features a DC-coupled input and a DC-coupled output, which eliminates the need for an AC-coupling capacitor. The device also includes SAG correction to reduce the size of the AC-coupling capacitor. It has a fixed gain of 6dB and is available in a small, lead-free, MicroPak™ package.









**Typical Performance Characteristics**

$T_A = 25^\circ\text{C}$ ,  $V_{CC} = 2.7\text{V}$ ,  $R_S = 37.5 \Omega$ , AC-coupled output into  $150 \Omega$  load, SAG pin connected to  $V_{OUT}$  pin, unless otherwise noted.

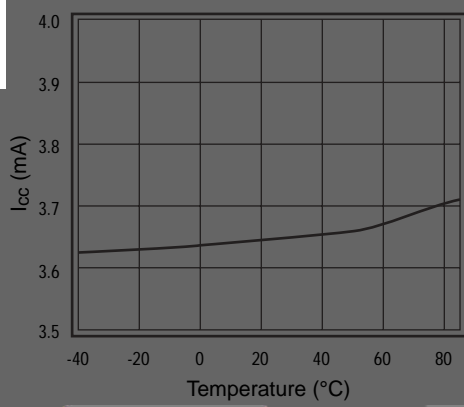


Figure 9. Supply Current vs. Temperature

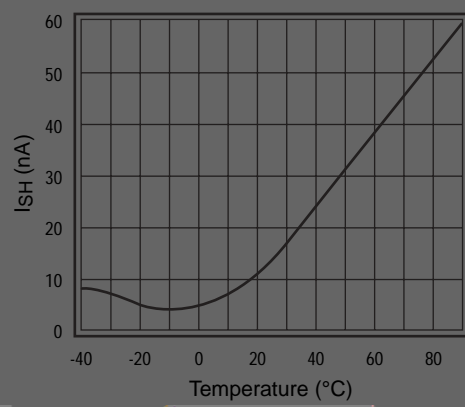


Figure 10. Shutdown Current vs. Temperature

## Application Information

### Input Voltage

The FMS6151 is intended to be directly driven by a DC-coupled DAC output. The input common-mode range of the FMS6151 is  $1.2V_{pp}$ , ground referenced.

### Enable/Shutdown

The FMS6151 has a shutdown feature that disables the output and reduces the quiescent current to  $\sim 25nA$ . This feature is especially useful in portable applications, such as cellular phones, hand held gaming devices, and video cameras requiring video filtering and drive capability.

### Internal Level Shift

The FMS6151 has an internal level-shift circuit to avoid sync tip clipping. The output signal is shifted 200mV toward the  $V_{CC}$  rail to help prevent clipping. This offset is useful when DC coupled out or using SAG correction.

### SAG Correction

SAG correction provides excellent performance with a small output coupling capacitor. It eliminates the  $220\mu F$  -  $1000\mu F$  output coupling capacitors traditionally used. The traditional output circuit ( $220\mu F$  into  $150\Omega$  load) creates a single pole (-3dB) at 5Hz. Reducing this capacitor causes excessive phase shift, resulting in video field tilt that can prevent proper recovery of the synchronization signals.

The FMS6151 SAG correction circuit provides a small amount of peaking, which provides compensation of the phase response, significantly reducing video field tilt. The SAG correction circuit allows decrease of the large  $220\mu F$  output coupling capacitor. A  $22\mu F$  is used for SAG correction and a  $47\mu F$  is used for the output coupling capacitor; much smaller and cheaper than traditional circuit requirements.

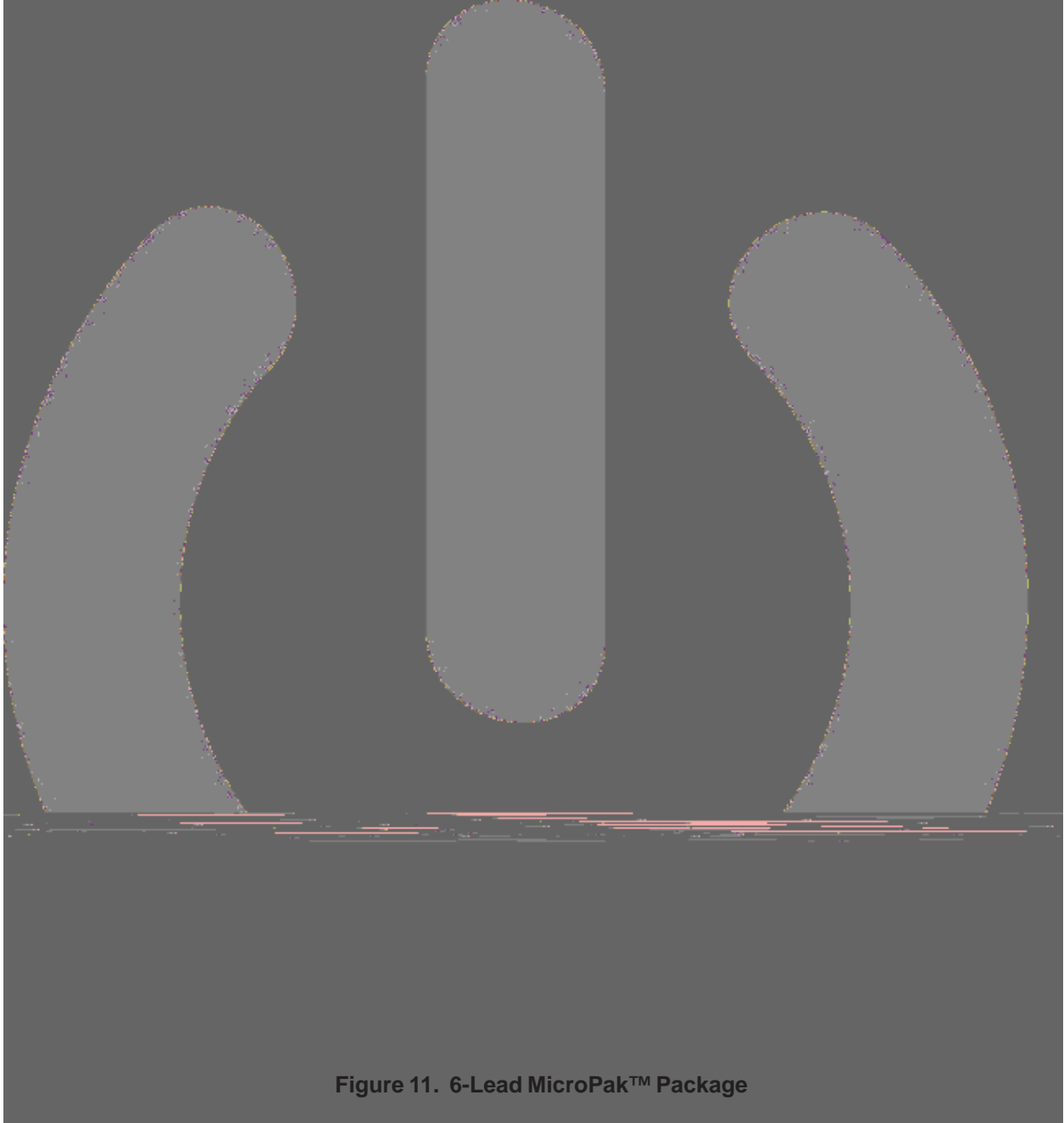
### Output Configuration

The FMS6151 output is a low-impedance voltage driver. It is capable of driving an AC- or DC-coupled single load.

*For more application information, please refer to FMS6151 Application Note, AN-8005.*



## Physical Dimensions



**Figure 11. 6-Lead MicroPak™ Package**

*Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner*



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