

MURATA ERIE HYBRID IC's SERIES

Murata Erie's Hybrid IC's are developed and manufactured based on the company's own original total hybrid system. This system offers many services to the customer including design consultation, sample lot production, pre-production, and mass production rationalization. The advantages of this system allows Murata Erie to work closely with the customer to meet all design and price targets required for a successful project. Successful application of this total system has allowed Murata Erie to support customers who compete in highly competitive markets such as Communication, Office Automation, and Consumer Electronics. Murata Erie has a Hybrid IC product line that includes Functional, Custom, and Semicustom devices.

WHAT IS A HYBRID IC?

Hybrid IC (Hybrid Integrated Circuit) incorporates electrical circuitry which combine such components as semiconductors, passive components, and printed elements on a ceramic substrate. There are basically two types of Hybrid IC, Thin Film and Thick Film. Thick Film tends to require less processing equipment than Thin Film and is more suitable for mass production. Because of the popularity and wide use of Thick Film, the term "Hybrid IC" has become traditionally associated with this technology. Murata Erie's technology is Thick Film Hybrid IC technology.

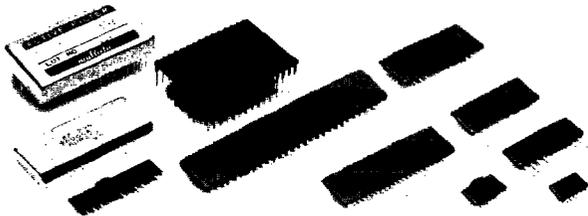
FEATURES OF HYBRID IC's

- Reduce component count and control costs.
- Shipped as 100% fully tested circuit module.
- Large variety of passive and active components can be mounted to substrate.
- Good high frequency and heat dissipation characteristics.
- Increased redesign and next generation design flexibility.
- Greatly reduces "time to market" cycle and costs.

APPLICATION FOCUS

| | HYBRID IC | Active Filters | RC/C Modules | Functional Module | | | | Custom Modules |
|-----------------------|---|----------------|--------------|----------------------|------------------|----------------|-------------------|----------------|
| | | | | Ceralock Oscillators | DC-DC Converters | Isolation Amps | Current Detectors | |
| Office Equipment | Modem and Facsimile | • | | • | | | • | • |
| | Printer/Typewriter | | • | • | | | | • |
| | Copying Machine | | • | | | | | |
| | FDD/HDO | | | • | | | | • |
| | CPU Terminal | • | • | • | | | | • |
| Telecommunications | Personal Computer I/O Board | • | • | | | • | • | • |
| | Electronic PBX/ISDN | • | • | | • | | | • |
| | Mobile Telephone | • | | | • | | | |
| | Key Telephone | • | • | • | | | | • |
| | Cordless Telephone | • | • | | | | • | • |
| Factory Communication | Pager | | • | | • | | | |
| | Numerical Control Machine Programmable Controller | • | | | • | • | | |
| Consumer Electronics | TV | • | • | | | | | |
| | DBS Tuner | • | | | | | | |
| | Home Audio/Portable Audio | • | • | • | • | | | |
| | Car Audio | • | • | • | • | | | • |
| | Home Electric Appliances | | • | • | | | | |

ACTIVE FILTER



Murata Erie active filters have achieved a high level of performance and quality, with over eighteen years of internal circuit design and thick film technology development. We participate in many markets and applications where active filters are commonly found. Some examples of these applications and resulting products specifications are provided below.

Murata Erie has many other active filter design options ranging from 10Hz to 200kHz. For large volume production requirements, we can also custom design your active filter. Refer to the FOCUSED APPLICATION CHART above, for all applications we are prepared to support. Please contact Murata Erie Hybrid IC (HIC) Application Engineers for consultation.

ACTIVE FILTER EXAMPLES (Please contact Murata Erie hybrid IC Group to discuss your detail filter requirements.)

| Application | Part Number | fc or fo (Hz) | Frequency | | Gain | | | Power Supply | | Package Size (LxWxH) (mm) |
|-----------------------------|----------------|---------------|----------------------|------------------------------|----------------|---------------|------------|--------------|------------------|---------------------------|
| | | | Pass-Band Range (Hz) | Max Ripple in Pass-Band (dB) | Pass-Band (dB) | Accuracy (dB) | Freq. (Hz) | Voltage (V) | Max Current (mA) | |
| 3 Order Stereo PCM Audio | AFS86F2000A2 | 20000 | 20 to 20000 | ±0.3 | -6 | ±0.5 | 1000 | +15 | 15 | 36x17x5 |
| 5 Order PCM Audio | AFL75F2000C1 | 20000 | 20 to 20000 | ±0.3 | -6 | ±1.0 | 1000 | +18 | 10 | 28x13x6.5 |
| 7 Order Stereo PCM Audio | AFS814F2000A2 | 20000 | 20 to 20000 | ±0.5 | -6 | ±0.5 | 1000 | +15 | 20 | 55x15x5 |
| 9 Order PCM Audio | AFL89F2000D1 | 20000 | 20 to 20000 | ±0.8 | 6.3 | ±0.5 | 1000 | +18 | 20 | 38x17x5.5 |
| 9 Order PCM Audio | AFL89WB2000C5 | 20000 | 20 to 20000 | ±0.3 | -6 | ±1.0 | 1000 | +15 | 20 | 37x16x5 |
| 11 Order PCM Audio | AFL811WF2200B3 | 22000 | 20 to 22000 | ±0.3 | -6 | ±1.0 | 1000 | +15 | 25 | 53x17x5 |
| 11 Order PCM Audio | AFL811WF2000B3 | 20000 | 20 to 20000 | ±0.3 | -6 | ±1.0 | 1000 | +15 | 25 | 53x17x5 |
| DBS Low Pass Filter | AFL87F15000E1 | 15000 | 20 to 15000 | ±0.8 | 6.3 | ±0.5 | 1000 | +18 | 15 | 33x15x6.5 |
| Group Delay EQ for FAX | AFE36F1800E1 | - | 300 to 3400 | ±1.0 | 0 | ±0.1 | 300 | +12 | 12 | 33x13.5x6.5 |
| Receive BPF for FAX | AFB19F1000L1 | 1000 | 500 to 2000 | ±0.7 | 0 | ±0.1 | 1000 | +12 | 5 | 33x15x6.5 |
| Receive BPF for Modem | AFB87F1000C1 | 1000 | 500 to 2000 | ±0.7 | 0 | ±0.1 | 1000 | +12 | 6 | 33x12x6.5 |
| Splatter LPF 2-Way Radio TX | AFL24F3000A10 | 3000 | 100 to 3000 | ±1.0 | -1.0 | ±0.5 | 300 | +12 | 3 | 16.5x11.5x5 |
| HPF 2-Way Radio TX | AFH24F250A10 | 250 | 250 to 3000 | ±1.0 | -0.5 | ±0.5 | 2500 | +7 | 0.8 | 16x11.5x5 |
| 2-Way Radio Data Band | AFL85F210C11 | 210 | 10 to 210 | ±1.0 | 0 | ±1.0 | 100 | +12 | 12.5 | 24x8x12 |
| 2-Way Radio Audio Band | AFH85F300B1 | 300 | 300 to 3000 | ±1.0 | 0 | ±1.0 | 1000 | +12 | 5.7 | 25x5.5x12.5 |

AFL = Low Pass, AFH = High Pass, AFB = Band Pass, AFS = Stereo Low Pass, AFE = EQ Function