



Smoke and Heat Alarm System

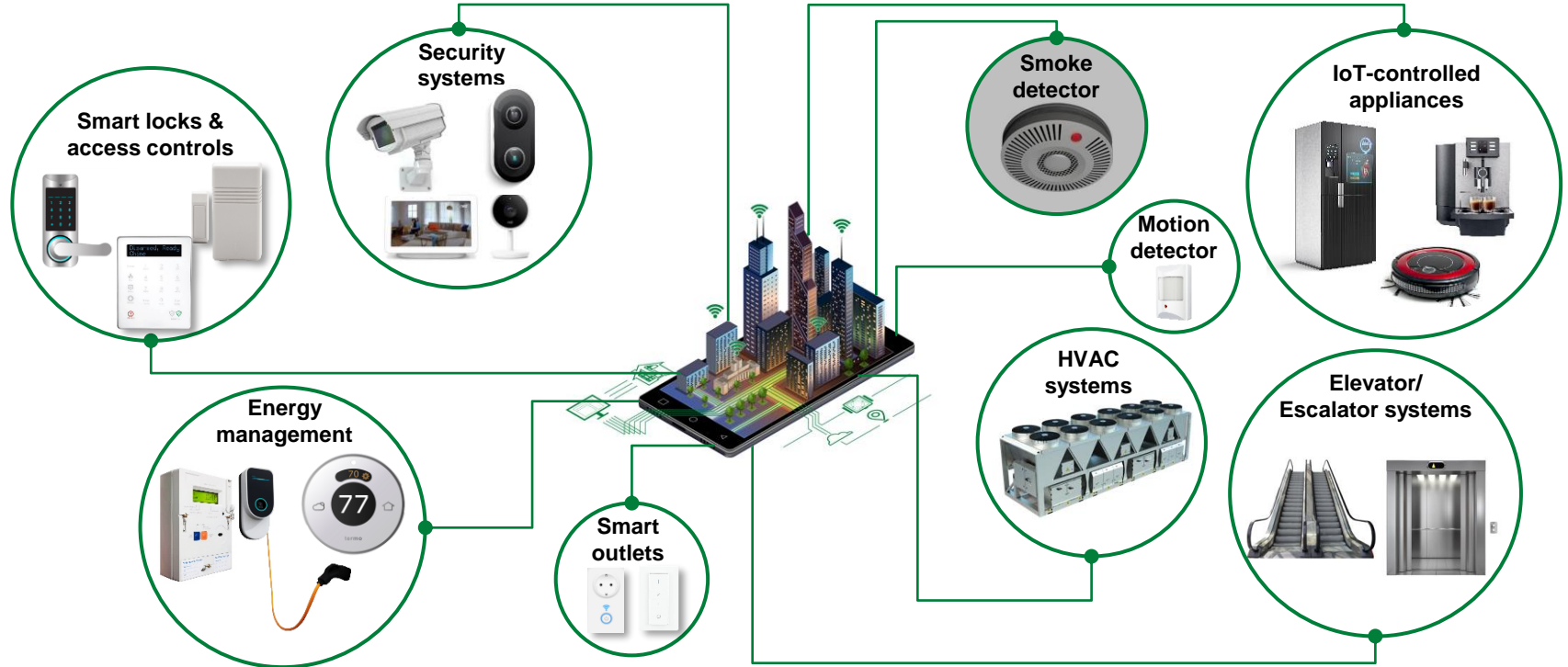


Building automation



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Smart buildings & homes are equipped with intelligent technologies that make lives more convenient and energy efficient



Littelfuse offers protect, control, and sense technologies to improve the safety, reliability, and energy efficiency of buildings.



Market trends and drivers for smoke and heat alarm

Market trends and drivers

Global smoke detector unit shipments are expected to increase from 98M in 2020 to 150M units in 2025

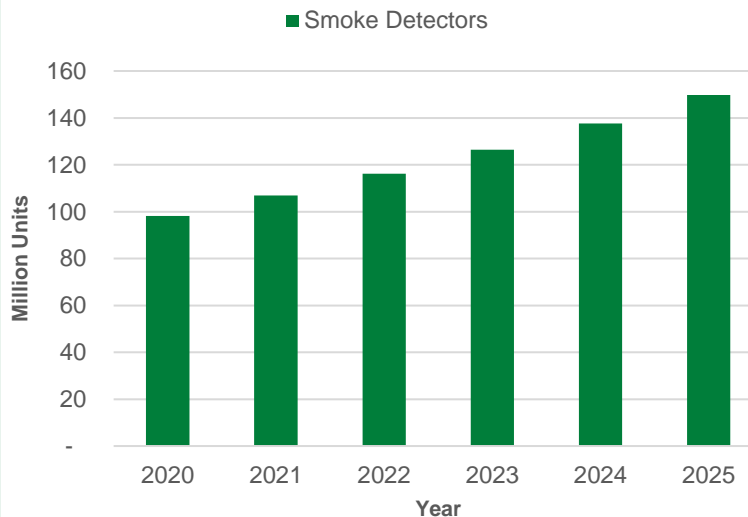
Rising awareness and regulation for fire safety of all buildings is a key factor in driving global growth

The commercial segment is the largest, marking up over half of the volumes. The residential segment is expected grow the fastest, driven by population growth and urbanization

The Americas and Europe are the largest markets currently, however Asia Pacific is the fastest growing

Wireless smoke detectors are battery powered and can be Wi-Fi enabled to be part of the smart home or building ecosystem

Rapid growth at ~8.8% CAGR



Source: [Smoke Detector Market](#) (Grand View Research, May 2019)

Littelfuse solutions for smoke and heat alarm system

Power supply and DC/DC converter

- Fuse
- MOV
- TVS diode



Temperature sensor

- NTC

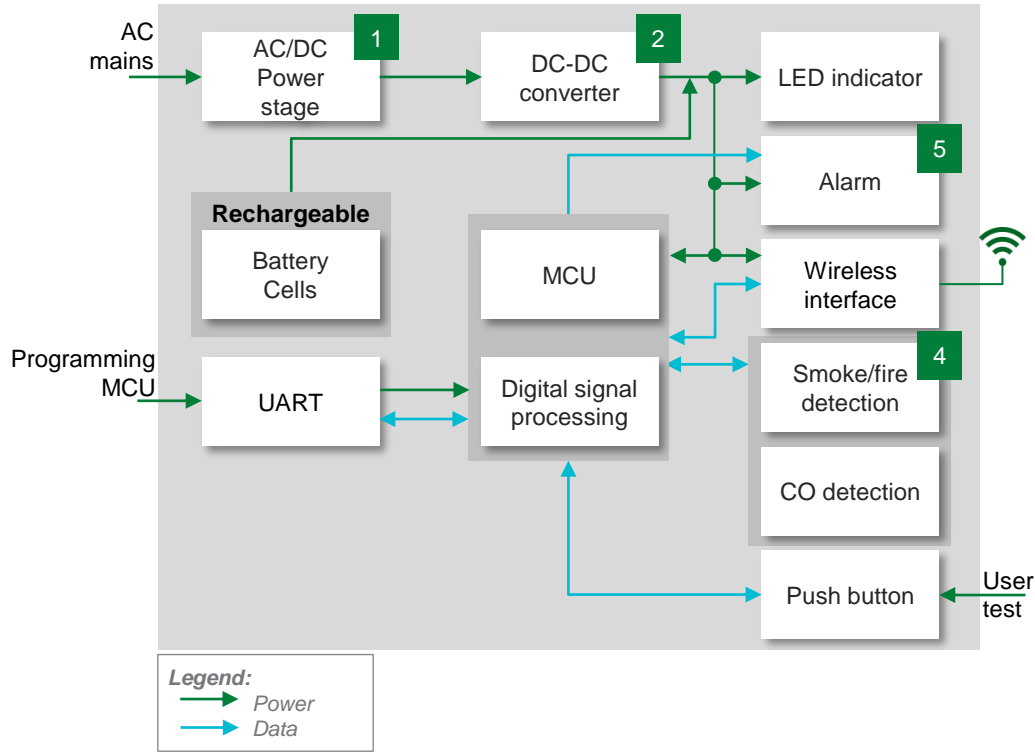


Alarm

- Reed relay
- SCR



Smoke and heat alarm functional block diagram



	Technology	Series
1	Fuse	875, 263, 373, 392
	MOV	LA
2	TVS diode	SMCJ
3	NTC	KW, KT, USUG1000
4	SCR	EC103M
	Reed relay	HE3600



Benefits of recommended Littelfuse solutions

	Technology	Function in application	Product series	Benefits	Features
1	Fuse	Protects power stage from overcurrent events	875 , 263 , 373 , 392	Reduces customer qualification time by complying with regulatory safety standards such as UL/IEC	Third-party compliance (UL/IEC); low internal resistance; shock safe; vibration resistant
	MOV	Helps protect power unit from voltage surges and lightning events on AC line	LA	Reduces customer qualification time by complying with regulatory safety standards such as UL/IEC	Can meet wide-set surge withstand specifications: 40–530 J (2 ms)
2	TVS Diode	Protects sensitive electronic components from voltage transients	SMCJ	Improves system reliability by clamping the voltage at safe levels during transients	1500 W peak pulse capability; low, dynamic resistance; 0402 footprint
3	NTC	Temperature sensing	KW , KT , USUG1000	Provides accurate temperature (component/ambient) for enabling safe device operation	High reliability; small form factor; fast thermal response
4	SCR or Reed Relay	Used to trigger the alarm	EC103M	Excellent unidirectional switch for face control applications; Sensitive gate SCRs are easily triggered with microAmps of current	Voltage capability up to 600 V; surge capability up to 20 A
			HE3600	Low power consumption; high isolation; immune to environmental effects	Miniature single in-line package; external magnetic shield option

Additional information can be found on [Littelfuse.com](https://www.littelfuse.com)

Building automation
application guide



Circuit Protection
Selection Guide



Sensor Products
Selection Guide

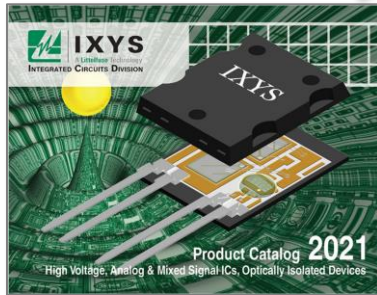


Power Semiconductor
Selection Guide

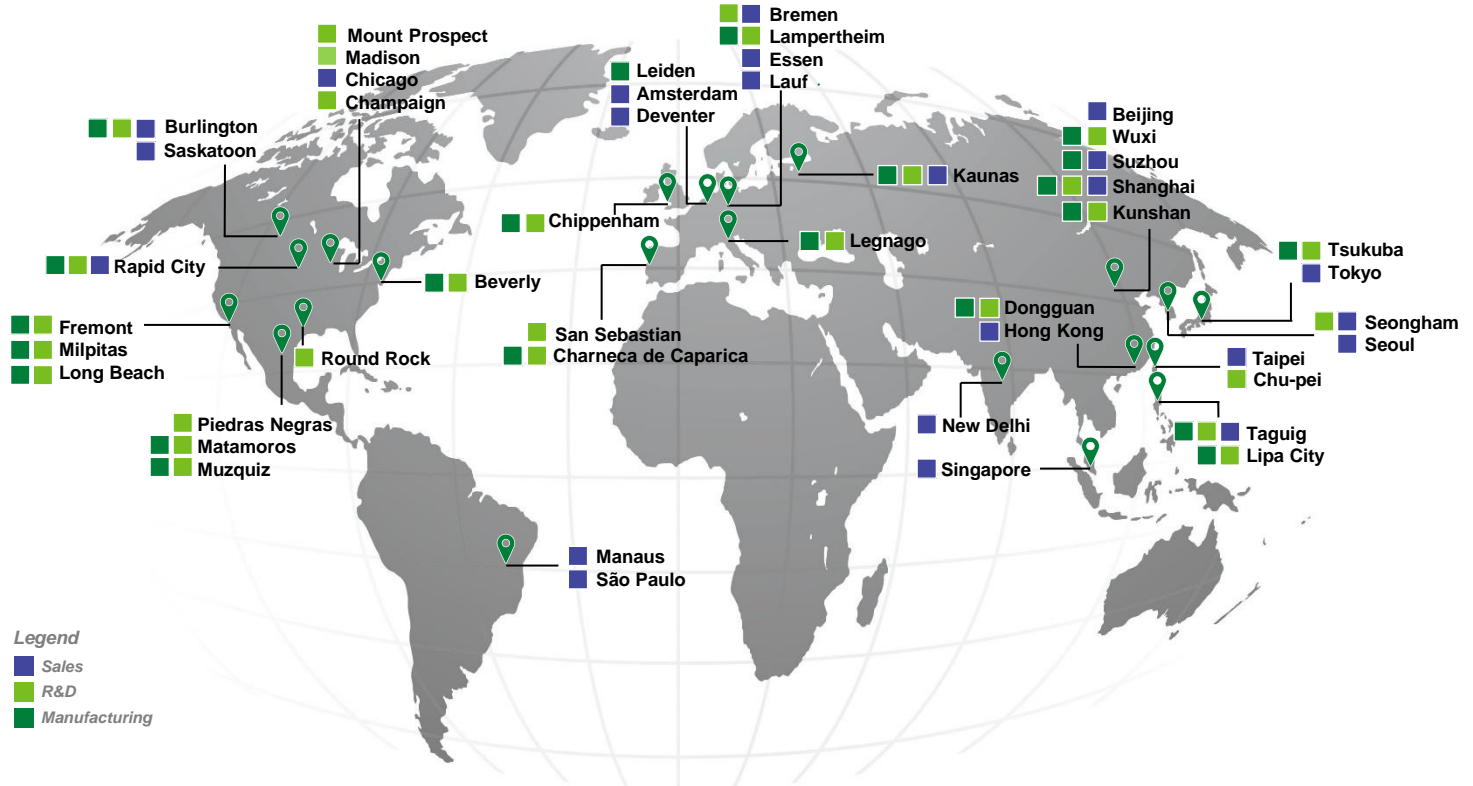


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Integrated Circuits
Product Catalog

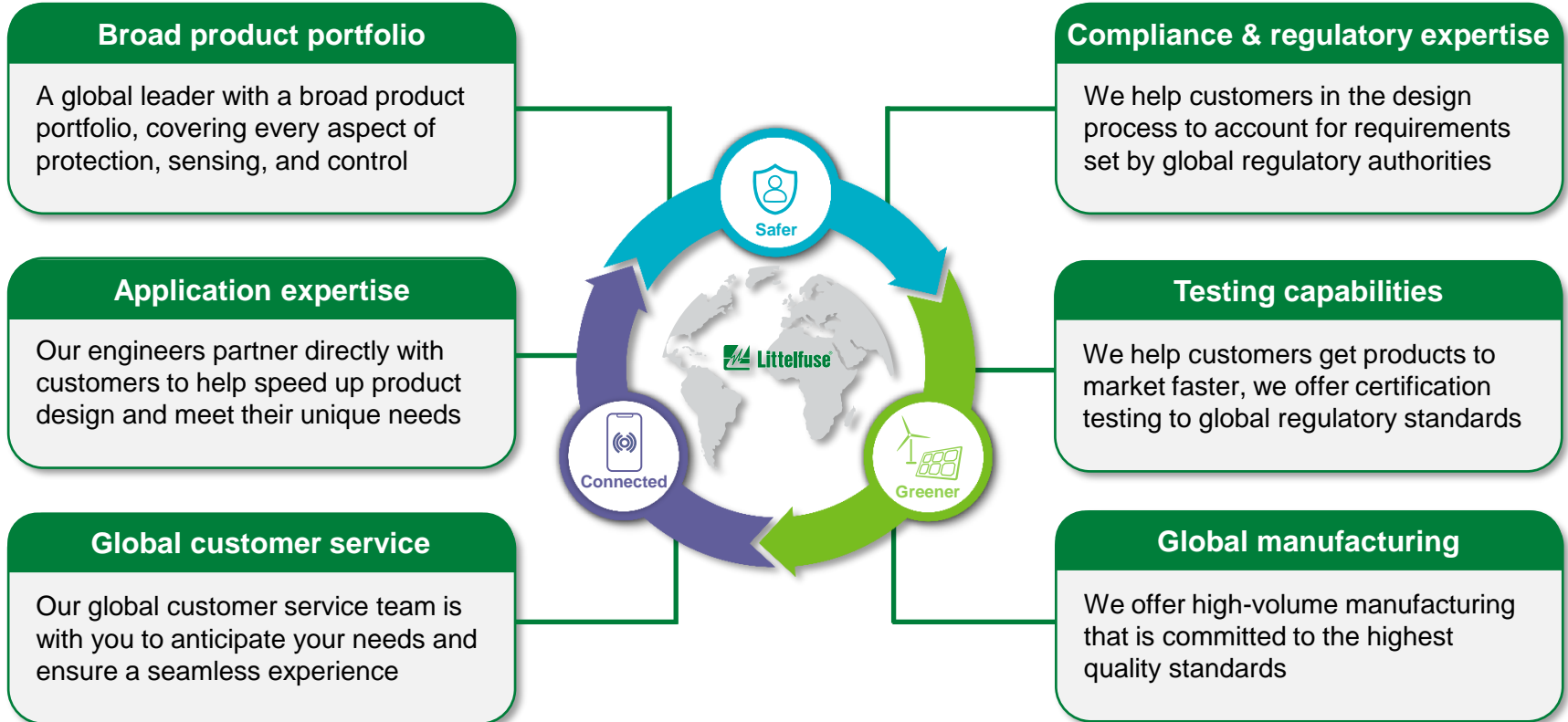


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Supplementary slides

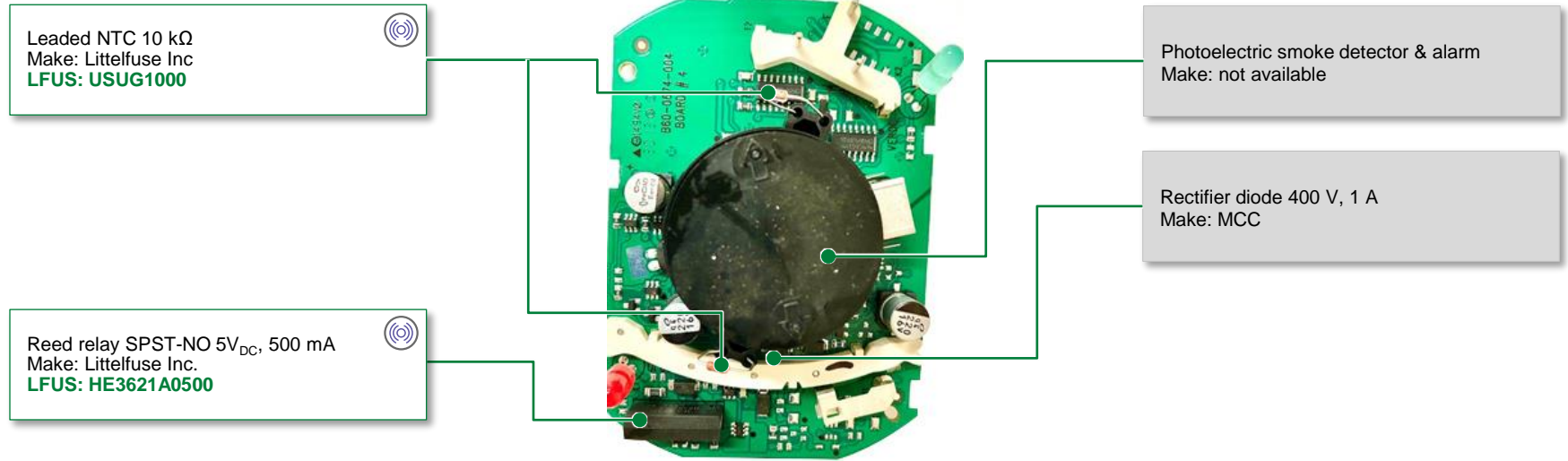
System Sensor smoke/fire alarm



System Sensor
smoke/fire alarm

Model number & specification	
Name	System Sensor
Model Number	4WTA-B
Description	Photoelectric smoke detector
Specifications	Voltage: 12/24 VDC Detection temperature: 57°C
Other manufacturers of similar products	Kidde; Honeywell International Inc., Johnson Controls, BRK Brands, Inc., Siemens AG, Birdi, Hochiki Corporation, Huawei Technologies Co. Ltd., Xtralis Pty Ltd., and Robert Bosch LLC.
Littelfuse opportunities	Reed relay: HE3600 ; Temperature Sensor: USUG1000

System Sensor – Reed relay DWIN



Technology	Function in Application	Series	Benefits	Features
NTC	Temperature sensing	USUG1000	Excellent long-term reliability and stability even when subjected to severe environmental or thermal conditions	Temperature rating = -40 to +150°C; hermetically sealed glass package; maximum power rating = 20 mW
Reed relay	Control switch to activate alarm	HE3600	Low power consumption; high isolation; immune to environmental effects	Miniature single in-line package; external magnetic shield option

Ei Electronics heat alarm



**Ei Electronics
Heat Alarm**

Model number & specification	
Name	Ei Electronics
Model Number	Ei3014
Description	Fire detector
Specifications	Voltage: 230 V _{AC} mains power Battery: Coin-type rechargeable lithium battery 3 V, 50 mAh (VL2330; make: Panasonic) Detection temperature: 54 °C
Other manufacturers of similar products	Kidde; Honeywell International Inc., Johnson Controls, BRK Brands, Inc., Siemens AG, Birdi, Hochiki Corporation, Huawei Technologies Co. Ltd., Xtralis Pty Ltd., and Robert Bosch LLC.
Littelfuse opportunities	Fuse: 263 ; MOV: LA ; SCR: EC103M ; NTC: KW , KT

Ei electronics heat alarm

MOV 300V_{RMS}, 7 mm
Make: Littelfuse Inc.
LFUS: V300LA4P



Fuse 250 V_{AC}, 125 mA
Make: Littelfuse Inc.
LFUS: 0263.125 (PICO® II series)



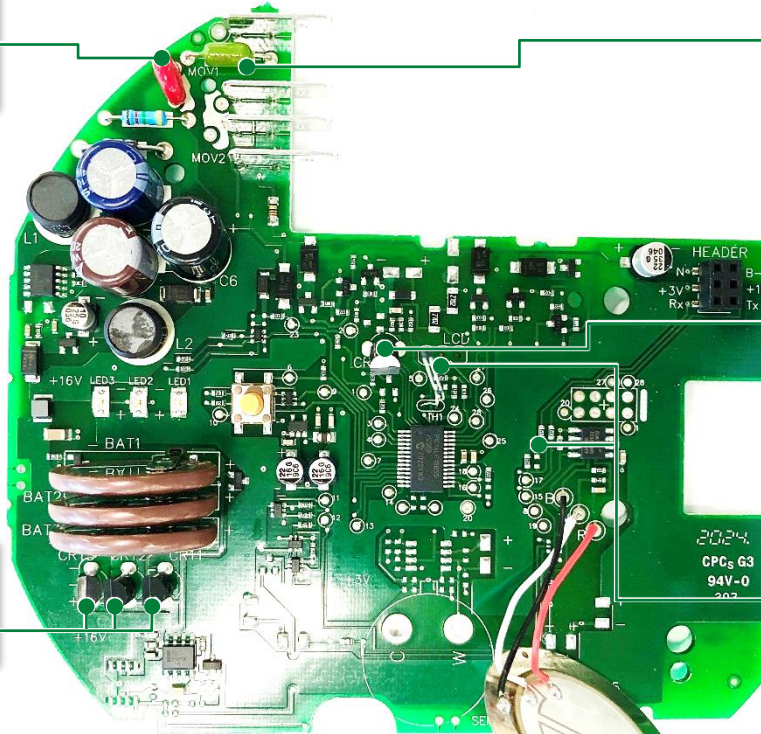
SCR 400 V_{DRM}, 0.8 A
Make: not available
LFUS: EC103M



SCR 400 V_{DRM}, 0.8 A
Make: not available
LFUS: EC103M



Thermistor epoxy coating 6 k Ω
Make: not available
LFUS: KW, KT series



Features & benefits of Littelfuse components

Technology	Function in Application	Series	Benefits	Features
Fuse	Protects power stage from overcurrent events	263	Reduces customer qualification time by complying with regulatory safety standards such as UL/IEC	Third-party compliance (UL/IEC); low internal resistance; shock safe; vibration resistant
MOV	Helps protect power unit from voltage surges and lightning events on AC line	LA	Reduces customer qualification time by complying with regulatory safety standards such as UL/IEC	Can meet wide-set surge withstand specifications: 40–530 J (2 mS)
SCR	Used to trigger the alarm	EC103M	Excellent unidirectional switch for face control applications; sensitive gate SCRs are easily triggered with microAmps of current	Voltage capability up to 600 V; surge capability up to 20 A
NTC	Temperature sensing	KW, KT	Provides accurate temperature (component/ambient) for enabling safe device operation	High reliability; small form factor; fast thermal response



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