






e-peas
semiconductors

Leading the way to **energy**
autonomous edge computing

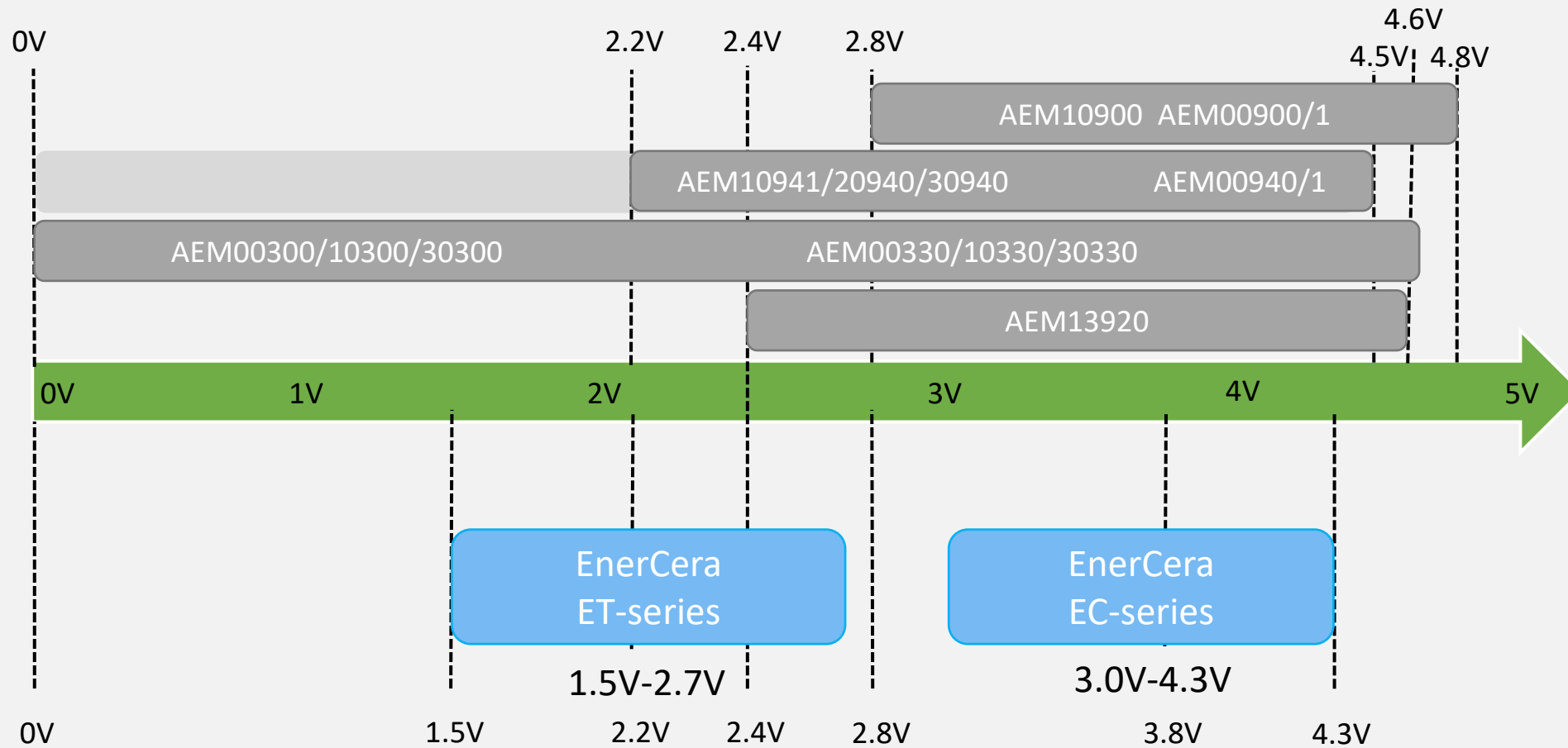


Solutions of Power source for maintenance-free IoT Devices

Ambient energy manager product portfolio

	 Solar/Light	 Thermal	 AC Sources	Intermittent sources and Light
Boost	AEM10941	AEM20940	AEM30940	
Buck-Boost	AEM10330		AEM30330	AEM00330
Buck-Boost Battery Charger	AEM10300		AEM30300	AEM00300
Boost Battery Charger Single element	AEM10900	AEM00940		AEM00900
	AEM00901			
New Dual input Boost + 5V DC input	AEM13920	AEM13920	AEM13920	AEM13920

AEM series product fit for NGK's EnerCera series



All e-peas PMICs are compliant with NGK EnerCera Batteries

New Selector guide

[AEM Selector Guide - E-peas](#)

Brochure



Interactive



RESET FILTER

Energy Harvester Source

- Indoor/Outdoor PV Cell (2)
- Pulse Generator (1)
- Vibration Transducer (1)
- RF Antenna (1)
- Thermo Electric Generator (1)

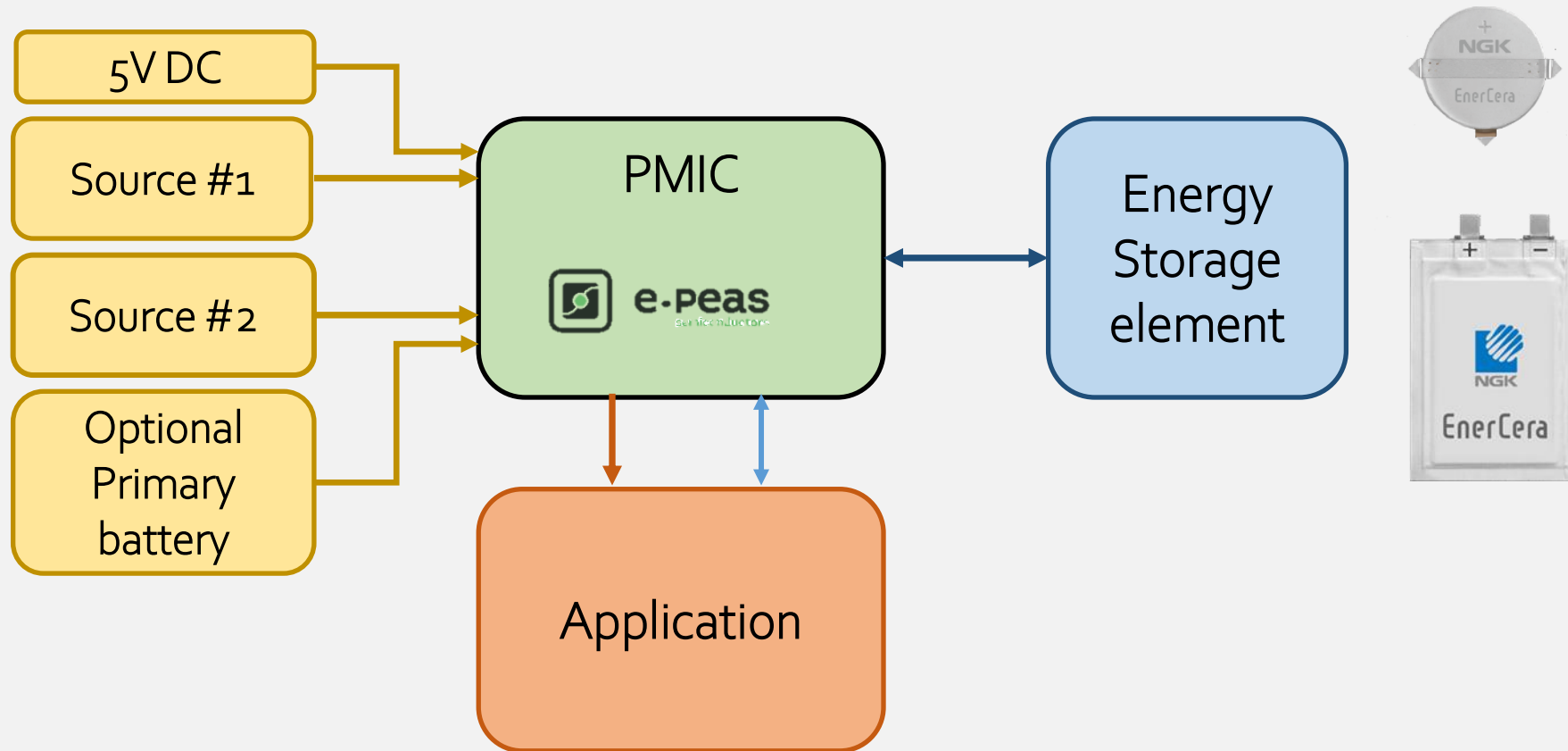


AEM00940
Solar/Light Energy
Harvesting Battery
Charger






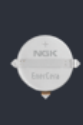

AEM10941
Solar Energy
Harvesting

Generic Block Diagram



*please note : not all features sketched above are available on all PMIC references

Recommended e-peas PMIC for EnerCera batteries & PV

Model Number	EC series		ET series		
	EC382704P-T	EC382704P-Hr	ET382704P-H	ET2016C-R	ET1210C-H
Appearance					
Dimensions/Diameter (Without terminals)	38 x 27mm		New! Coming soon	20mm	12.5mm
Thickness (With terminals)	0.45mm			2.05mm	1.3mm
Nominal Capacity	27mAh (4.3V) 24mAh (4.2V)	20mAh	20mAh	25mAh	4mAh
Nominal Voltage	3.8V		2.3V		
Charge	Constant Current (CC) – Constant Voltage (CV) charging		Constant Voltage (CV) charging (No current control required)		
	Charging Voltage		Charging Voltage		
	Standard Charge Current		Standard Charge Current		
Discharge	End Voltage		End Voltage		
	Standard Discharge Current*1		Standard Discharge Current*1		
	(Ref.) Peak Discharge Current*2		(Ref.) Peak Discharge Current*2		
Bendability	Conforming to ISO 14443-1 standard No deterioration after bending and torsion tests			-	
Operation Temperature	Discharge: -20°C ~ 45°C (Charge: 0°C ~ 45°C)	Discharge: -20°C ~ 60°C (Charge: 0°C ~ 60°C)	-40°C ~ 70°C		-20°C*5 ~ 105°C
Features	High Power	High heat resistance*3	Fast charging*4	Reflow soldering unapplicable Applicable type under development	Reflow soldering applicable*6

*1 Current with which nominal capacity can be used
 *2 Voltage drop is less than 0.5V with continuous discharge for 0.1 sec. (at 25°C)
 *3 Compatible with hot lamination for IC card manufacturing.
 *4 Can be charged from 0% to 80% capacity in 14min.
 *5 From -40°C to 105°C for RTC backup applications.
 *6 Recommended conditions Max.240°C x 1 time.
 Please contact us for details.

IEC62133 certified
 Contents may be changed without notice.

Main selection criteria is nominal voltage of EnerCera

AEM10900 and PV cell

[ONP1.2-37x54 \(powerfilmsolar.com\)](http://powerfilmsolar.com)

AEM10330 and PV cell

[LL200-4.8-37 \(powerfilmsolar.com\)](http://powerfilmsolar.com)

[ONP1.2-37x54 \(powerfilmsolar.com\)](http://powerfilmsolar.com)

Solution of Energy Harvesting power source with AEM10330 and EnerCera ET-Series



AEM10330

Self reconfigurable **Buck-Boost** converter

MPPT algorithm + ZMPP feature

Storage element protection

Ultra-low voltage/Power **cold-start** with dedicated pin

1 x **regulated output** (Buck-Boost output)

High power / low power: **EN_HP**

Enable charger: **EN_STO_CH**

Sleep mode: **EN_SLEEP**

Start-up priority storage vs load: **STO_PRIO**

Embedded **Balancing circuit** for dual cell supercap

Fast **supercap** charging

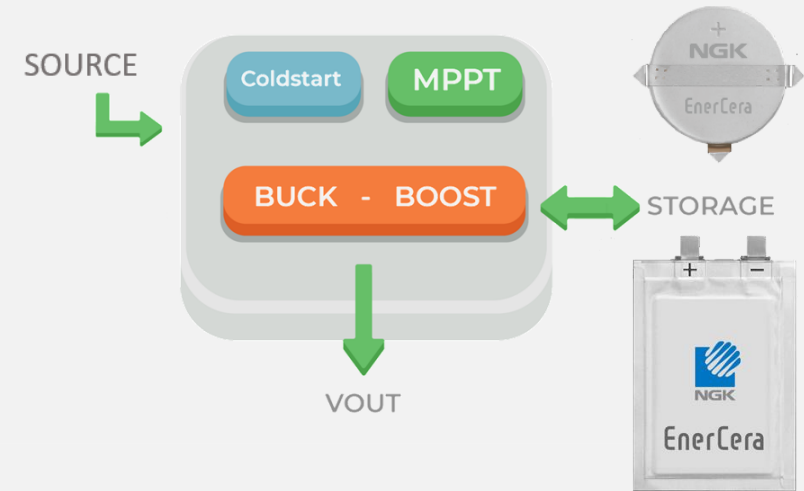
4 external components required

QFN40 package 5x5mm

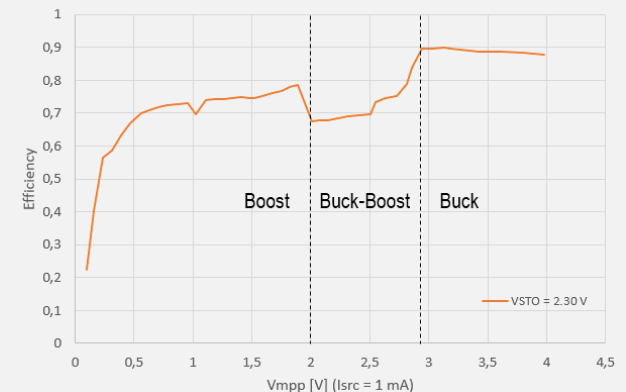


Key numbers

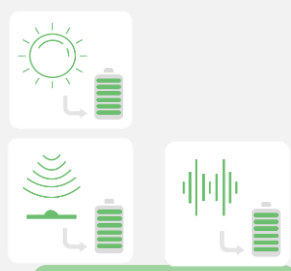
- Lowest power cold-start: 3 μ W @ 275 mV
- Buck-Boost minimum input voltage: 100 mV
- Load power: 30mA in low power mode, 60 mA in high power mode - Selectable load voltage from 1.2V to 3.3V



Internal buck-boost efficiency



New Power Management product



Dual input Boost Architecture: AEM13920

AEM13920

Dual Boost converter	Ultra low power cold start
MPPT or constant voltage input	GPIO or I2C configuration
Storage element protection	Very high conversion efficiency (>90%)
Optional 5V booster input	I2C bus
Buck DC DC output	3 external components required

QFN40 package 5x5mm



Key numbers

- Lowest power cold-start: 1.5 μ W @ 275 mV
- Dual Source input
- Average Power monitoring to and from Storage
- I2C interface for full monitoring
- GPIO configuration

SOURCE 1
SOURCE 2
Opt 5V SOURCE

