



USABC Goals for Advanced Batteries for 12V Start Stop Vehicle Applications

End of Life Characteristics	Units	Target	
		Under hood	Not under hood
Discharge Pulse, 1s	kW	6	
Max discharge current, 0.5s	A	900	
Cold cranking power at -30 °C (three 4.5-s pulses, 10s rests between pulses at min SOC)	kW	6 kW for 0.5s followed by 4 kW for 4s	
Min voltage under cold crank	Vdc	8.0	
Available energy (750W accessory load power)	Wh	360	
Peak Recharge Rate, 10s	kW	2.2	
Sustained Recharge Rate	W	750	
Cycle life, every 10% life RPT with cold crank at min SOC	Engine starts/miles	450k/150k @ 45°C	450k/150k @ 30°C
Calendar Life at 30°C, 45°C if under hood	Years	15 at 45°C	15 at 30°C
Minimum round trip energy efficiency	%	95	
Maximum allowable self-discharge rate	Wh/day	2	
Peak Operating Voltage, 10s	Vdc	15.0	
Sustained Operating Voltage – Max.	Vdc	14.6	
Minimum Operating Voltage under Autostart	Vdc	10.5	
Operating Temperature Range (available energy to allow 6 kW (1s) pulse)	°C	-30 to + 75	-30 to +52
30 °C – 52 °C	Wh	360 (to 75°C)	360
0 °C	Wh	180	
-10 °C	Wh	108	
-20 °C	Wh	54	
-30 °C	Wh	36	
Survival Temperature Range (24 hours)	°C	-46 to +105	-46 to +66
Maximum System Weight	kg	10	
Maximum System Volume	L	7	
Maximum System Cost (@ 1M units/year)	\$	\$220	\$180