

## Single Fire Coil S19

This single fire coil was developed for the use in Formula 1 high performance engines. It is designed to mount directly on the spark plug.

This coil optionally provides an ionic current measurement.

The design of the upper part (wire side) and the lower part (spark plug side) can be designed per customer specification.

The main benefits of this high performance coil are its robustness in hard racing applications and high energy efficiency.



Application	
Spark energy	≤ 34 mJ
Primary current	≤ 25 A
Operating temperature range @ outer core	0 ... 160 °C
Storage temperature range	-40 ... 100 °C
Max. vibration	≤ 800 m/s <sup>2</sup> @ 5 ... 2,500 Hz

Electrical Data	
Primary resistance	200 mΩ
Secondary resistance	Incapable of measurement
High voltage rise time	≤ 7.5 kV/μs
Provided high voltage @ 1 MΩ    10 pF	≤ 33 kV
Spark current	≤ 320 mA
Spark duration @ 1 kV    1 MΩ	≤ 0.27 ms
Noise suppression	inductive
Suppressor diode / EFU	Yes
Integrated power stage	No
Ionic current signal	optional

Mechanical Data	
Diameter	18.5 mm
Weight	100 g
Mounting	pluggable / pressed

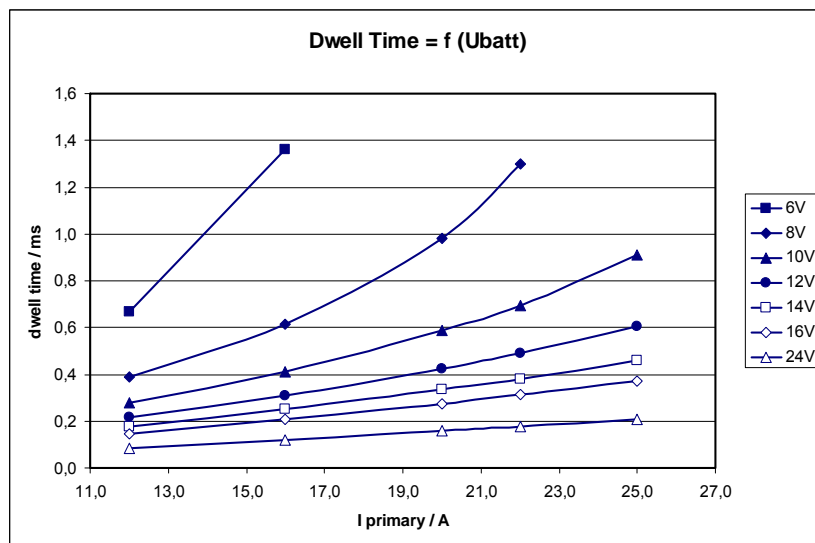
  

Characteristic	
Measured with power stage	IGBT IRG4BC40S (U <sub>ce</sub> = 600 V)

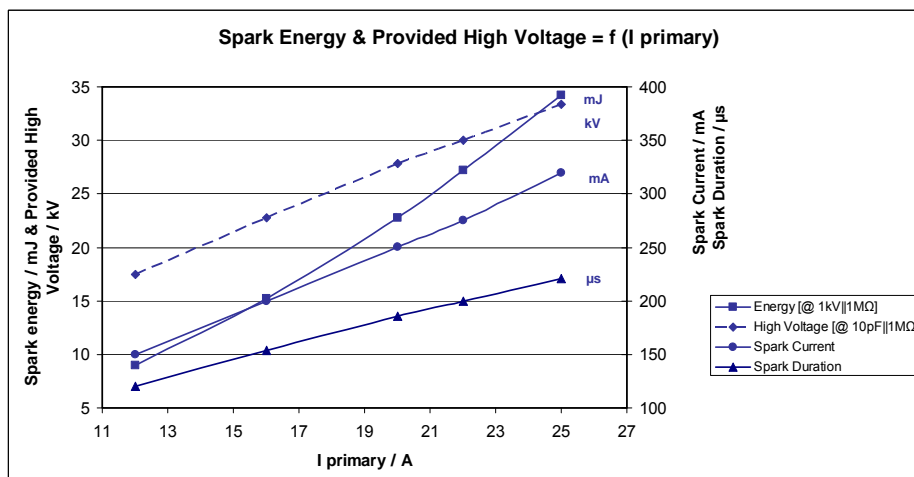
**Characteristic Dwell Time [ms]**

I primary	U batt								
	6 V	8 V	10 V	12 V	14 V	16 V	24 V	27 V	30 V
12.0 A	0.7	0.390	0.278	0.216	0.176	0.148	0.084	0.077	0.068
16.0 A	1.4	0.613	0.411	0.310	0.250	0.208	0.119	0.107	0.094
20.0 A		0.980	0.586	0.426	0.335	0.276	0.157	0.139	0.122
22.0 A		1.300	0.695	0.491	0.382	0.313	0.175	0.155	0.136
25.0 A			0.910	0.606	0.460	0.371	0.208	0.180	0.157

Measured values are without loom resistance. Loom resistance must be less than the primary resistance.  
The needed dwell time is to be verified through current measurement.


**Characteristic Spark Energy & Provided High Voltage**

	I primary				
	12 A	16 A	20 A	22 A	25 A
Spark energy [mJ]	9	15.2	22.8	27.2	34.2
Spark duration [μs]	120	154	186	200	221
Spark current [mA]	150	200	250	275	320
High voltage [kV]	17.5	22.8	27.8	30	33.4



Connectors and Wires	
Connector	on request
Mating connector	on request
Pin 1	U <sub>batt</sub> red
Pin 2	ECU collector white
Pin 3	Engine GND black
Pin 4	optional ionic current signal screen wire white
Various motorsport and automotive connectors are available on request.	
Wire size	AWG 20/22
Wire length	max. 100 cm
Please specify the required wire length with your order.	

### Application Hint

During mounting of the spark plug please pay attention that full clamping and proper contacts are made to ensure safe connection between coil and spark plug.

Please only use with engine control units with an integrated ignition power stage, e.g. IGBT IRG4BC40S.

For technical reasons the values of the coils may vary.

Please regard the specified limit values.

Please find further application hints in the offer drawing (<http://www.bosch-motorsport.com>).

### Part Number

Single Fire Coil S19 **0 221 B00 113-01**

