

Single Fire Coil S22 / S22-T

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

This coil optionally provides an ionic current measurement and an integrated ignition power stage. 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	≤ 60 mJ
Primary current	≤ 16 A
Operating temperature range @ outer core	[1] 0 ... 160 °C [2] 0 ... 150 °C
Storage temperature range	-40 ... 100 °C
Max. vibration	≤ 800 m/s ² @ 5 ... 2,500 Hz

Electrical Data	
Primary resistance with wire	[1] 330 mΩ [2] incapable of measurement
Secondary resistance	incapable of measurement
High voltage rise time	≤ 5.0 kV/μs
Max. high voltage @ 1 MΩ 10 pF	≤ 25 kV
Spark current	≤ 300 mA
Spark duration @ 1 kV 1 MΩ	≤ 0.43 ms
Noise suppression	inductive
Suppressor diode / EFU	Yes
Integrated power stage	[1] No [2] Yes
Ionic current signal	optional

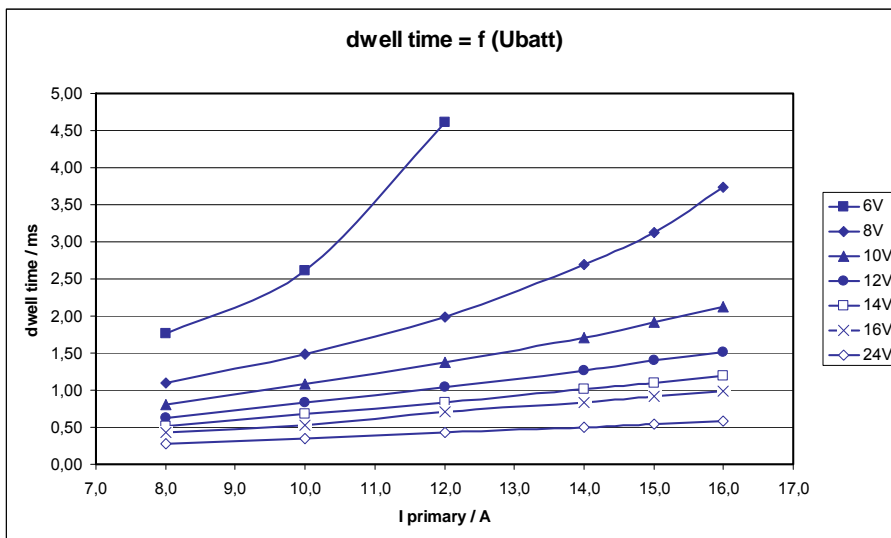
Mechanical Data	
Diameter	22 mm
Weight	150 g
Mounting	pluggable / pressed

Characteristic Data	
Measured with power stage	
[1]	IGBT IRG4BC40S (U _{ce} = 600V)
[2]	IGBT IRF5036S (U _{ce} = 400V)

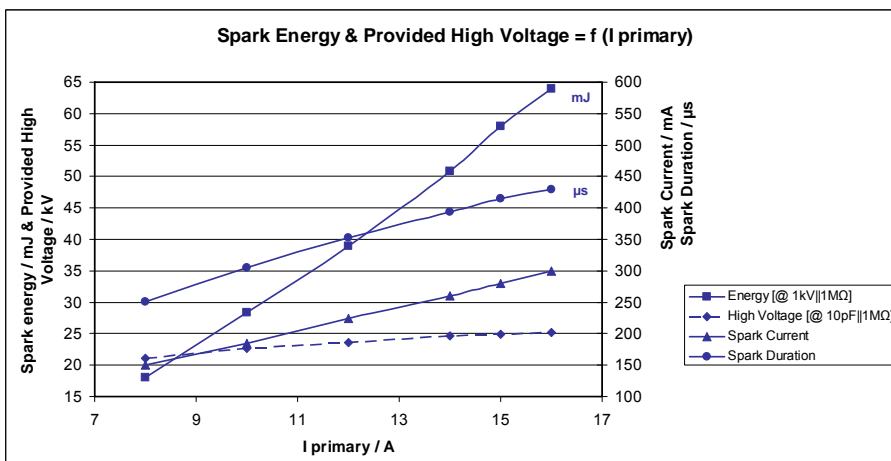
Characteristic Dwell Time [ms]

I primary	U _{batt}							
	6 V	8 V	10 V	12 V	14 V	16 V	20 V	24 V
8.0 A	1.76	1.10	0.80	0.62	0.51	0.44	0.34	0.27
10.0 A	2.61	1.49	1.08	0.83	0.68	0.53	0.44	0.35
12.0 A	4.61	1.99	1.37	1.04	0.84	0.70	0.53	0.43
14.0 A		2.70	1.71	1.27	1.01	0.84	0.63	0.50
15.0 A		3.12	1.91	1.40	1.10	0.91	0.68	0.54
16.0 A		3.74	2.12	1.52	1.19	0.99	0.73	0.58

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					
	8 A	10 A	12 A	14 A	15 A	16 A
Spark Energy [mJ]	18.1	28.3	39	50.8	58	64
Spark Duration [μs]	251	305	353	394	415	430
Spark Current [mA]	150	185	225	260	280	300
High Voltage [kV]	21.1	22.7	23.6	24.6	24.9	25.2



Connectors and Wires	
Connector	on request
Mating connector	on request
Pin 1	U _{batt} red
Pin 2	[1] ECU collector white [2] ECU Imp yellow
Pin 3	[1] Engine GND black [2] ECU GND blue
Pin 4	[1] optional ionic current signal screen cable white [2] Engine GND black
Pin 5	[1] n.a. [2] optional ionic current signal screen cable white
Various motorsport and automotive connectors are available on request.	
Wire size	AWG 20/22
Wire length	max. 100 cm
Please specify your 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.

For coils without "-T", please only use with engine control units with an integrated ignition power stage, e.g. IGBT IRG4BC40S.

For coils with "-T", please only use with engine control units without integrated power stages.

For technical reasons the values of the coils may vary.

Please regard the specified limit values.

Operation with limit values of 16 A can reduce the life time of the ignition coil. In case of permanent operation please use 12 A. This will bring a spark energy of 40 mJ.

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

Part Number

Coil S22 [1]	0 221 B00 115-01
Coil S22-T [2]	0 221 B00 116-01

