

DC-Micromotors

Precious Metal Commutation

0,6 mNm

1,24 W

Series 0816 ... SR

Values at 22°C and nominal voltage	0816 K	003 SR	006 SR	009 SR	012 SR	
Nominal voltage	U_N	3	6	9	12	V
Terminal resistance	R	5,4	21,2	47	102	Ω
Rotor inductance	L	53	217	507	1 030	μH
Efficiency, max.	η_{max}	69	69	69	67	%
No-load current, typ.	I_0	0,0162	0,0083	0,0057	0,0039	A
No-load speed	n_0	13 200	13 500	13 500	12 600	min^{-1}
Stall torque	M_H	1,14	1,13	1,15	1	mNm
Rotor inertia	J	0,051	0,052	0,051	0,049	gcm^2
Friction torque	M_R	0,034	0,034	0,035	0,034	mNm
Torque constant	k_M	2,11	4,12	6,19	8,8	mNm/A
Speed constant	k_n	4 530	2 320	1 540	1 090	min^{-1}/V
Slope of n-M curve	$\Delta n/\Delta M$	11 600	11 900	11 700	12 600	$\text{min}^{-1}/\text{mNm}$
Thermal resistance:						
– winding to housing	R_{th1}	26				K/W
– housing to ambient (external plastic flange)	$R_{\text{th2 p}}$	63				K/W
– housing to ambient (external metal flange)	$R_{\text{th2 m}}$	11				K/W
Thermal time constant:						
– winding	τ_{w1}	5,5				s
– housing (external plastic flange)	$\tau_{w2 p}$	110				s
– housing (external metal flange)	$\tau_{w2 m}$	20				s
Operating temperature range:						
– motor		-30 ... +85 (optional version	-30 ... +125)			°C
– winding, max. permissible		+85 (optional version	+125)			°C
Shaft bearings		sintered bearings				
Shaft diameter		1				mm
Radial shaft load max.:						
– dynamic at 3 000 min^{-1} (1,5 mm from bearing)		0,7				N
Axial shaft load max.:						
– dynamic at 3 000 min^{-1}		0,1				N
– static (shaft unsupported)		20				N
Shaft play, max.:						
– radial		0,02				mm
– axial		0,2				mm
Speed up to	n_{max}	16 000				min^{-1}
Number of pole pairs		1				
Mass		4,5				g
Housing material		steel, nickel plated				
Magnet material		NdFeB				

Rated values for continuous operation						
Rated torque	M_N	0,6	0,591	0,595	0,576	mNm
Rated current (thermal limit)	I_N	0,323	0,163	0,109	0,0745	A
Rated speed	n_N	4 010	4 220	4 290	2 960	min^{-1}

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The $R_{\text{th2 p}}$ value has been reduced by 0%.

Note:

The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

The diagram shows the motor in different conditions of thermal coupling, i.e. mounted respectively on a plastic flange and a metal flange.

The nominal voltage (U_N) curve shows, up to the thermal limit, the operating point at nominal voltage for the motor mounted on a plastic flange. Higher torque can be achieved by further reducing the thermal resistance.

Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



