

## **DC-Micromotors**

Series 2338 ... S

18 Thermal resistance

## **Precious Metal Commutation**

## 2.5 Watt

See beginning of the Motor Section for Ordering Information

For combination with:

Gearheads: 23/1, 30/1, 32PG, 38/3 Encoders: HE, 5500, 5540

## 2338 S 006 S 009 S 012 S Nominal voltage $U_{N}$ 4.5 Volt 18 12 24 6 5.7 10.0 ± 12% 2 Terminal resistance R 1.4 2.6 23.5 38.0 Ω Output power P<sub>2 max.</sub> 3.39 3.23 3.29 3.31 3.18 3.50 W 4 Efficiency η<sub>max.</sub> 69 % 5 No-load speed 7,400 ± 12% 7,200 7,200 7,800 7,400 7,600 rpm no 6 No-load current (with shaft ø 0.12 in) ± 50% 0.100 0.080 0.060 0.050 0.030 0.025 Stall torque $M_{\text{H}}$ 2.55 2.42 2.41 2.29 2.32 2.49 oz-in 8 Friction torque $M_R$ 0.082 0.086 0.095 0.099 0.095 0.102 oz-in 1,650 rpm/V 9 Speed constant $k_n$ 1,240 855 678 428 330 mV/rpm 10 Back-EMF constant $k_E$ 0.606 0.804 1.170 1.470 2.340 3.030

Torque constant  $k_{M}$ 1.088 1.586 1.997 3.158 oz-in/A 0.818 4.107 A/oz-in 12 Current constant 0.919 0.630 0.501 0.317 0.244 1.222 2,824 2.975 3,071 3,406 rpm/oz-in 13 Slope of n-M curve  $\Delta$ n/ $\Delta$ M 3,190 3,052 Rotor inductance L 100 180 380 630 1,400 2,600 μH 15 Mechanical time constant  $\tau_{m}$ 20 17 17 17 17 17 ms 5.523 · 10-5 5.381 · 10<sup>-5</sup> Rotor inertia 6.797 · 10-5 5.240 · 10-5 4.815 · 10-5 5.098 · 10<sup>-5</sup> oz-in-sec<sup>2</sup> 16 17 Angular acceleration  $\alpha_{\,\text{max}}$ ·10³rad/s² 38 44 46 48 46 47

19 Thermal time constant	$\tau_{w1}/\tau_{w2}$	5.7 / 645		S	
20 Operating temperature range:					
– motor	- 30 to +85 (- 22 to +185)				
<ul> <li>rotor, max. permissible</li> </ul>	+125 (+257)				
Note: Special operating te	-55°C to +125°C (- 67°F to +257°F) available on request.				
21 Shaft hearings		sintered bronze sleeves	hall hearings	hall hearings preloaded	

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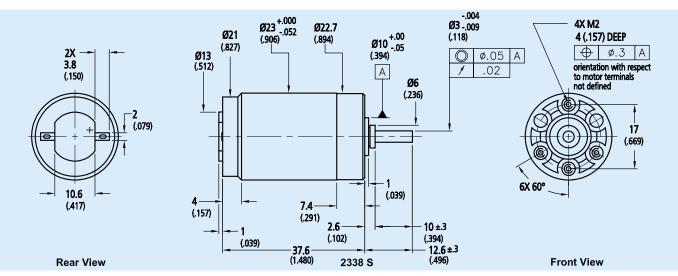
R<sub>th 1</sub> / R<sub>th 2</sub>

22 Shaft load max.: (standard) (optional) (optional) - with shaft diameter 0.1181 0.1181 0.1181 in - radial at 3,000 rpm (0.12 in from bearing) 72 72 οz - axial at 3,000 rpm 1.08 7.2 7.2 οz - axial at standstill 72 72 72 ΟZ 23 Shaft play: - radial ≤ 0.0012 0.0006 0.0006 in 0.0079 0.0079 - axial in

24 Housing material steel, zinc galvanized and passivated
25 Weight 2.47 oz
26 Direction of rotation clockwise, viewed from the front face

Recommended values

Neconinended values									
27 Speed up to	n <sub>e max.</sub>	6,000	6,000	6,000	6,000	6,000	6,000	rpm	
28 Torque up to	M <sub>e max.</sub>	0.566	0.566	0.566	0.566	0.566	0.566	oz-in	
29 Current up to (thermal limits)	I <sub>e max.</sub>	1.380	1.000	0.680	0.510	0.330	0.260	Α	



°C/W