

DC-Micromotors

Graphite Commutation

Cantilever Brushes

5.4 mNm

For combination with:
 Gearheads:
 MD22P, M22P
 Encoder:
 AMT 102, AMT 103, E4P-300, HEDS 55,
 HEDL 50, ME2-16, PD3-1250

Series M2232U..GS

	M2232U		06GS	12GS	24GS	
1 Nominal voltage	U_N		6	12	24	Volt
2 Winding resistance	R	$\pm 12\%$	2.10	7.20	31.00	Ω
3 Output power	$P_{2 \text{ max.}}$		3.97	4.65	4.29	W
4 Efficiency	$\eta_{\text{ max.}}$		65	66	65	%
5 No-load speed	n_o	$\pm 12\%$	8,700	8,400	8,700	rpm
6 No-load current max. (shaft \varnothing 2 mm)	I_o	$\pm 50\%$	0.107	0.060	0.030	A
7 Stall torque	M_H		18.11	21.92	19.60	mNm
8 Friction torque	M_R		0.68	0.79	0.76	mNm
9 Speed constant	k_n		1,506	726	377	rpm/V
10 Back-EMF constant	k_E		0.66	1.38	2.65	mV/rpm
11 Torque constant	k_M		6.34	13.15	25.32	mNm/A
12 Current constant	k_I		0.158	0.076	0.039	A/mNm
13 Slope of n-M curve	$\Delta n / \Delta M$		480	383	444	rpm/mNm
14 Rotor inductance	L		750	3,400	13,000	μH
15 Mechanical time constant	τ_m		24	19	22	ms
16 Rotor inertia	J		4.5	4.5	4.5	gcm^2
17 Angular acceleration	$\alpha_{\text{ max.}}$		40	49	44	$\cdot 10^3 \text{ rad/s}^2$
18 Thermal resistance	$R_{\text{th} 1} / R_{\text{th} 2}$		13 / 20	17 / 22	13 / 20	k/W
19 Thermal time constant	τ_{w1}		522	450	450	s
20 Operating temperature range:						
- motor		- 10 to + 50				$^{\circ}\text{C}$
- rotor, max. permissible		+ 120				$^{\circ}\text{C}$
21 Shaft bearing		sintered bronze sleeves				
22 Shaft load max.:						
- with shaft diameter		2				mm
- radial at 3,000 rpm (3mm from bearing)		2				N
- axial at 3,000 rpm		1				N
- axial at standstill (shaft supported)		294				N
23 Shaft play						
- radial	\leq	0.025				mm
- axial	\leq	0.05 to 0.45				mm
24 Housing material		steel, zinc-plating (chrome free)				
25 Weight		40				g
26 Direction of rotation		clockwise, viewed from the front face				
Recommended values						
27 Speed up to	$n_{e \text{ max.}}$		10,000	10,000	10,000	rpm
28 Torque up to	$M_{e \text{ max.}}$		5.150	5.307	5.354	mNm
29 Current up to (thermal limits)	$I_{e \text{ max.}}$		1.010	0.502	0.263	A



