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NTE1630
Integrated Circuit
VCR Cylinder Motor Driver

Description:
The NTE1630 is an integrated circuit designed for VCR cylinder DD motor drive.

Features:
- 3–Phase motor drive circuit
- 2 Phase–Hall element input circuit
- PG, FG, generator circuit
- Motor Lock Detector
- Supply Voltage either 9V or 12V

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Supply Voltage, V_{CC} 14.4V
Circuit Voltage, V_{n-12} (n = 1,2,23) 0/40V
Circuit Voltage, V_{21-12} 0/24V
Circuit Voltage, I_n (n = 1,2,23) 0mA/–1500mA
Power Dissipation, P_D 10W
Operating Ambient Temperature Range, T_{opr} . . . . . –20 to +70°C
Storage Temperature Range, T_{stg} . . . . . –40 to +150°C

Electrical Characteristics: (T_A = +25°C ± 2°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total circuit current	I_{tot}	V_{CC} = 9V disable	4.0	–	20	mA
ET–ATC transfer gain	$G_{(10)}$	V_{CC} = 9V	0.86	–	1.06	–
ATC limit voltage	$V_{(lim)}$	V_{CC} = 9V when a full torque specified	0.44	–	0.50	V
Saturation detection gain	$G_{(S)}$	V_{CC} = 9V, R_d = 0.47Ω	0.5	–	1.5	–
Saturation detection start voltage	$V_{(Det1)}$	V_{CC} = 9V, R_d = 0.47Ω	1.0	–	1.8	V
Saturation detection end voltage	$V_{(Det 2)}$	V_{CC} = 9V, R_d = 0.47Ω	0.5	–	1.0	V
HV output voltage	V_{HV}	V_{CC} = 9V, V_{SV} = 2.6V, R_{HV} = 270	2.1	–	–	V
HV protective voltage	$V_{(Protect)}$	V_{CC} = 9V, V_{SV} = V_{CC}	3.5	–	4.3	V
DS level voltage	$V_{\overline{DS}}$	V_{CC} = 9V	–	–	1.2	V
ETR voltage	V_{ETR}	V_{CC} = 9V	4.3	–	4.7	V
HEM, $\overline{HEM}$, HES, $\overline{HES}$ bias current	I_{bias}	V_{CC} = 9V	–6	–	–	μA
Hes–$\overline{HES}$ comparator offset voltage	$V_{I(offset)S}$	V_{CC} = 9V	–6	–	6	mV

Electrical Characteristics (Cont'd): (T_A = +25°C ± 2°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
HEM–$\overline{\text{HEM}}$ comparator offset voltage	$V_{I(offset)M}$	V_{CC} = 9V	–6	–	6	mV
PG minimum voltage	V_{OL19}	V_{CC} = 9V, 47kΩ to Pin 19–5V	–	–	0.5	V
FG minimum voltage	V_{OL20}	V_{CC} = 9V, 47kΩ to Pin 20–5V	–	–	0.5	V
BEG take–out voltage	V_{BFG}	V_{CC} = V_M = 9V	0.6	–	1.0	V

Note 1 Operating supply voltage $V_{CC(opr)}$ = 8 ~ 13V ($V_{7–12}$)

Pin Connection Diagram