SGS-THOMSON MICROELECTRONICS

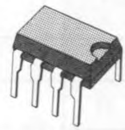
TDA7275A

MOTOR SPEED REGULATOR

ADVANCE DATA

- EXCELLENT VERSATILITY IN USE
- HIGH OUTPUT CURRENT (UP TO 1.5A)
- LOW QUIESCENT CURRENT
- LOW REFERENCE VOLTAGE (1.32V)
- EXCELLENT PARAMETERS STABILITY VERSUS AMBIENT TEMPERATURE
- START/STOP FUNCTION (TTL LEVELS)
- DUMP PROTECTION

The TDA7275A is a linear integrated circuit in minidip plastic package. It is intended for use as speed regulator for DC motors of record players, tape and cassette recorders.
The dump protection make it particularly suitable for car radio applications.



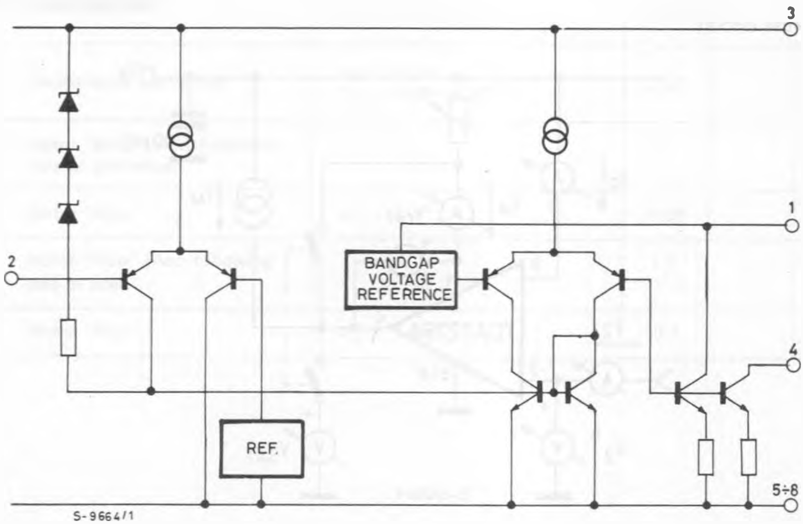
Minidip (4 + 4)

ORDERING NUMBER: TDA7275A

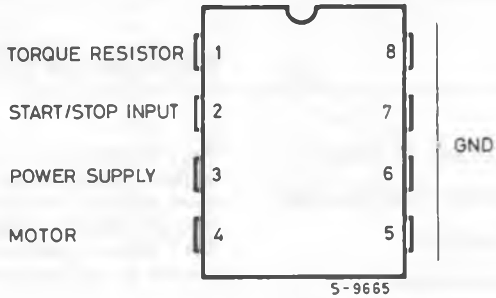
ABSOLUTE MAXIMUM RATINGS

V_s	Supply voltage	19	V
V_s	Peak supply voltage (for 50ms)	45	V
I_M	Maximum output current	1.5	A
T_{op}	Operating temperature range	-30 to 85	°C
P_{tot}	Total power dissipation T_{amb} = 70°C	1	W
	T_{pins} = 70°C	4	W

SCHEMATIC DIAGRAM



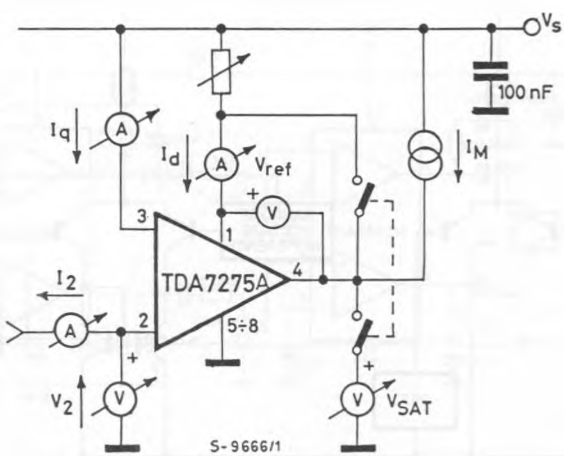
CONNECTION DIAGRAM
(Top view)



THERMAL DATA

$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	80	°C/W
$R_{th\ j-pins}$	Thermal resistance junction-pins	max	20	°C/W

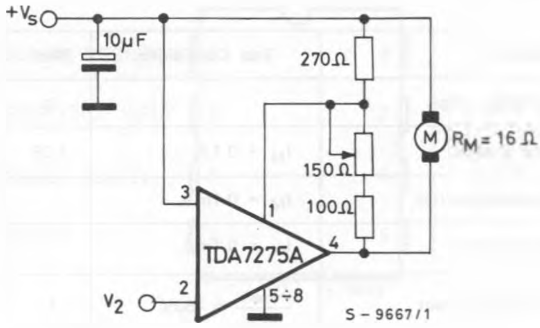
Fig. 1 - Test circuit



ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C, V_s = 12V unless otherwise specified, refer to test circuit)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
V_s	Supply voltage range		8		18	V
V_{ref}	Reference voltage	I_M = 0.1A	1.05	1.22	1.35	V
$I_q + I_d$	Total quiescent current	I_M = 0.1mA		2		mA
I_d	Quiescent current	I_M = 0.1mA		1		mA
I_{ms}	Starting motor current	$\frac{\Delta V_{ref}}{V_{ref}}$ = -50%	1			A
V_4	Saturation voltage	I_M = 0.5A		1.7	2	V
$K = I_M/I_T$	Reflection coefficient	I_M = 0.1A	18	20	22	
$\frac{\Delta K/\Delta V_s}{K}$		I_M = 0.1A V_s = 8V to 16V		0.5		%/V
$\frac{\Delta K/\Delta I_M}{K}$		I_M = 25 to 200mA		-0.05		%/mA
$\frac{\Delta K/\Delta T}{K}$		I_M = 0.1A T_{op} = -30 to 85°C		0.02		%/°C
$\frac{\Delta V_{ref}/\Delta V_s}{V_{ref}}$	Line regulation	V_s = 8V to 16V I_M = 0.1A		0.04		%/V
$\frac{\Delta V_{ref}/\Delta I_M}{V_{ref}}$	Load regulation	I_M = 25 to 200mA		-0.01		%/mA
$\frac{\Delta V_{ref}/\Delta T}{V_{ref}}$	Temperature coefficient	I_M = 0.1A T_{op} = -30 to 85°C		0.02		%/°C
V_2	Motor "Stop" (Acc. Following data or grounded)			1		V
I_2	Motor "Stop"	V_2 = 1V		-0.05		mA
V_2	Motor "Run" (Acc. following data or open			1.5		V
I_2	Motor "Run"	V_2 = 1.5V		-0.1		mA

Fig. 2 - Application circuit



- $R_{Ttyp.} = K_{typ.}\ R_{Mtyp.}$ if $R_T > K_{min}\ R_{Mmin}$ instability may accur.
- A diode across the motor could be necessary with certain kind of motor.

Fig. 3 - Quiescent current vs. supply voltage

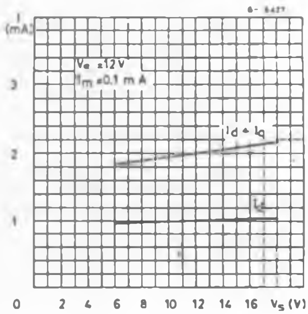


Fig. 4 - Speed variation vs. supply voltage

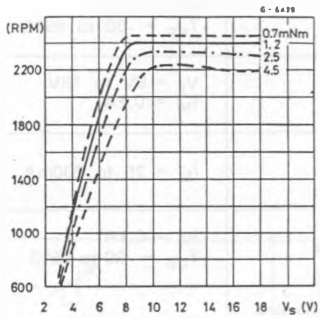


Fig. 5 - Speed variation vs. torque ($V_s = 12V$)