M54538P

7-UNIT 350mA TRANSISTOR ARRAY AND MOTOR DRIVER

DESCRIPTION

The M54538P, 7-channel sink driver and a motor driver, is designed for use in a thermal printer.

FEATURES

- Output breakdown voltage to 20V
- High output sink current to 350mA
- Wide operating temperature range (T_a = −20∼+75℃)

APPLICATIONS

- Thermal printer driver
- LED or incandescent display driver
- Interfacing for standard MOS/BIPOLAR logic

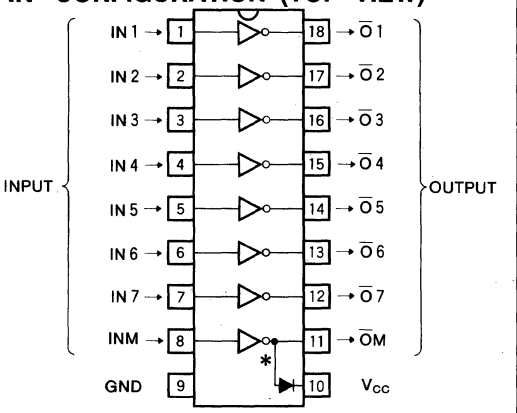
FUNCTION

The M54538P is designed for use in a thermal printer, consisting 7-channel thermal head driver and a D-C or stepper motor driver.

The output of the motor driver has a diode for inductive load transient suppression.

The outputs of the sink drivers are capaple of sinking 350mA and will withstand 20V in the OFF state.

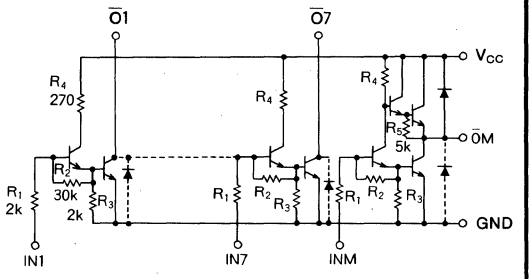
PIN CONFIGURATION (TOP VIEW)



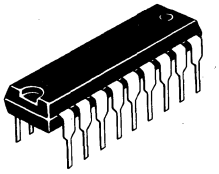
Outline 18P4

* : MOTOR DRIVER

CIRCUIT SCHEMATIC



UNIT : Ω



18-pin molded plastic DIL

ABSOLUTE MAXIMUM RATINGS (T_a=−20∼+75℃, unless otherwise noted)

Symbol	Parameter	Conditions		Limits	Unit
V_{CC}	Supply voltage			10	V
V_{CEO}	Output sustaining voltage	Transistor OFF	Ō1 to Ō7 Outputs	20	V
			ŌM Output	V_{CC}	V
I_C	Collector current	Transistor ON		350	mA
V_I	Input voltage			10	V
I_F	Clamp diode forward current	Pulse width≦35ms, Percent duty cycle≦5%		700	mA
				350	mA
P_d	Power dissipation	T_a=25℃		1.47	W
T_{opr}	Operating ambient temperature range			−20∼+75	℃
T_{stg}	Storage temperature range			−55∼+125	℃

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7-UNIT 350mA TRANSISTOR ARRAY AND MOTOR DRIVER

RECOMMENDED OPERATIONAL CONDITIONS (T_a=−20∼+75℃, unless otherwise noted)

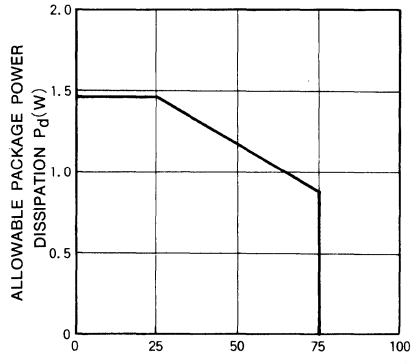
Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V_{CC}	Supply voltage		3		6	V
V_O	Output voltage				20	V
I_C	Collector current per channel	Percent duty cycle less than 30%, V_{CC}=6V			250	mA
		Percent duty cycle less than 35%, V_{CC}=6V			170	mA
V_{IH}	"H" Input voltage	I_C=250mA	3.2			V
		I_C=150mA	2.4			V
V_{IL}	"L" Input voltage				0.3	V

ELECTRICAL CHARACTERISTICS (T_a=−20∼+75℃, unless otherwise noted)

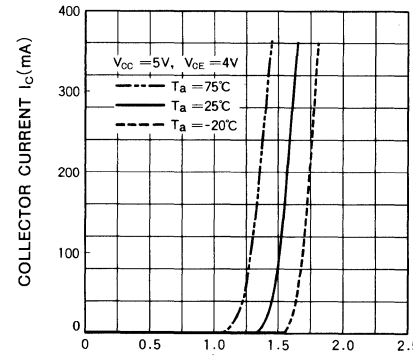
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$I_{O\ (leak)}$	Input leakage current	V_{CC}=6V, V_I=0.4V, V_{CE}=20V			50	μA
$V_{CE\ (sat)}$	Output saturation voltage	V_{CC}=3.5V, V_I=3V, I_C=250mA			0.6	V
		V_{CC}=3V, V_I=2.4V, I_C=150mA			0.4	
$V_{OH\ (M)}$	"H" Output voltage (motor driver)	V_{CC}=6V, $I_{OH\ (M)}$=−250mA	2.4			V
I_I	Input current	V_{CC}=6V, V_I=3.2V			1.5	mA
		V_{CC}=6V, V_I=10V			7.3	
$V_{F\ (M)}$	Clamp diode forward voltage	$I_{F\ (M)}$=350mA			3	V
I_{CC}	Supply current	V_{CC}=6V, V_I=3.2V (all input)			235	mA
h_{FE}	DC forward current gain	V_{CC}=5V, V_{CE}=4V, I_C=250mA, T_a=25℃	1000			

TYPICAL CHARACTERISTICS

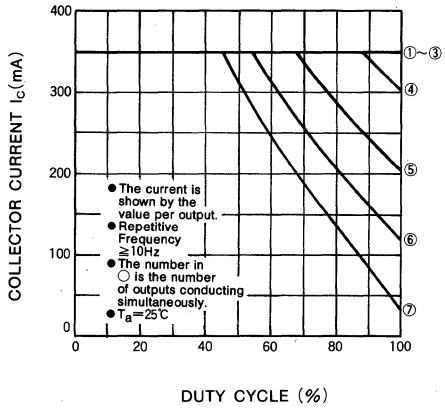
ALLOWABLE AVERAGE POWER DISSIPATION



OUTPUT CURRENT CHARACTERISTICS



ALLOWABLE COLLECTOR CURRENT AS A FUNCTION OF DUTY CYCLE



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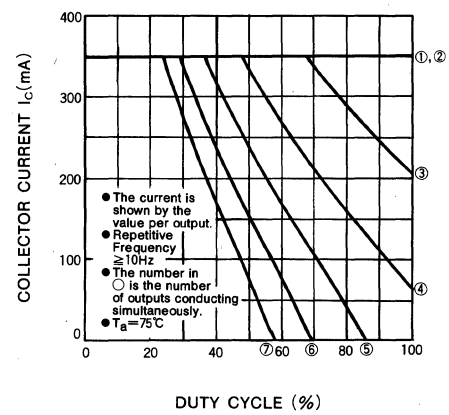
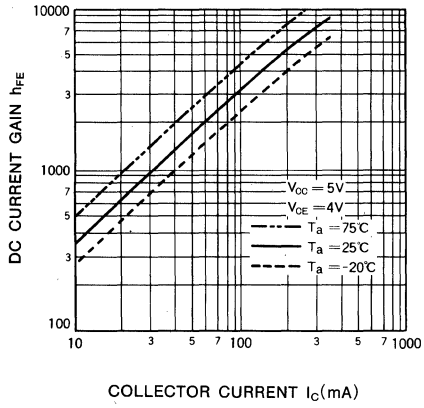


DC CURRENT GAIN CHARACTERISTICS



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