

INTERFACE CIRCUIT (RELAY AND LAMP DRIVER)

- HIGH OUTPUT CURRENT
- ADJUSTABLE SHORT-CIRCUIT PROTECTION TO GROUND
- INTERNAL THERMAL PROTECTION WITH HYSTERESIS TO AVOID THE INTERMEDIATE OUTPUT LEVELS
- LARGE SUPPLY VOLTAGE RANGE : + 10 V TO + 30 V
- SHORT-CIRCUIT PROTECTION TO V_{CC}

DESCRIPTION

The TDE3207 is a monolithic amplifier designed for high-current and high-voltage applications, specifically to drive lamps, relays and stepping motors.

This device is essentially blow-out proof. Current limiting is available to limit the peak output current to a safe value, the adjustment only requires one external resistor. In addition, thermal shut down is provided to keep the IC from overheating. If external dissipation becomes too high, the driver will shut down to prevent excessive heating.

The output is also protected from short-circuits with the positive power supply.

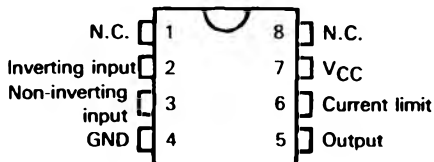
The device operates over a wide range of supply voltages from standard ± 15 V operational amplifier supplies down to the single + 12 V or + 24 V used for industrial electronic systems.

MINIDIP/2

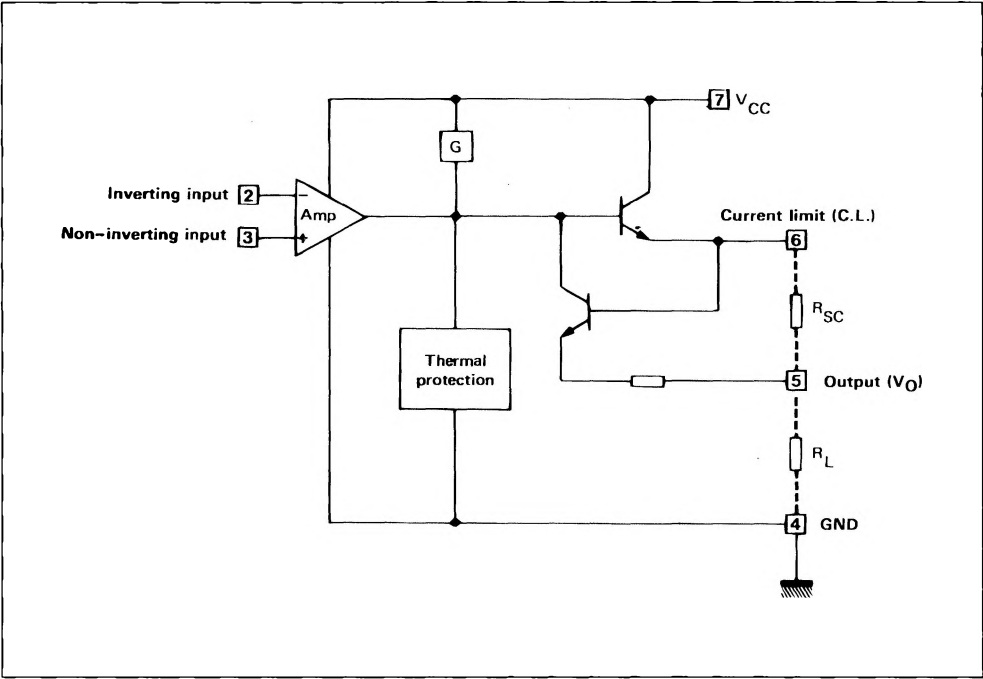


ORDER CODE : TDE3207DP

PIN CONNECTION



SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

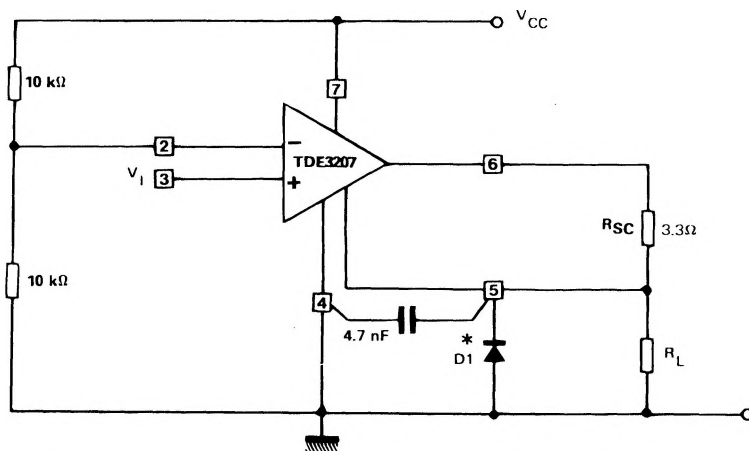
Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	36	V
V_{ID}	Differential Input Voltage	36	V
V_I	Input Voltage	36	V
I_O	Output Current	300	mA
P_{tot}	Power Dissipation	Internally Limited	W
T_{oper}	Operating Ambient Temperature Range	- 25 to + 85	°C
T_{stg}	Storage Temperature Range	- 65 to + 150	°C

ELECTRICAL CHARACTERISTICS

$-25\text{ }^{\circ}\text{C} \leq T_{\text{amb}} \leq +85\text{ }^{\circ}\text{C}$, $+8\text{ V} \leq V_{\text{CC}} \leq +30\text{ V}$, $I_{\text{O}} \leq 150\text{ mA}$, $T_{\text{j}} \leq +150\text{ }^{\circ}\text{C}$ (unless otherwise specified)

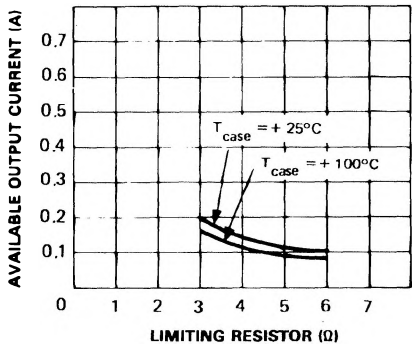
Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{IO}	Input Offset Voltage – (note 2)	–	2	50	mV
I_{IB}	Input Bias Current	–	0.1	1.5	μA
I_{CC}	Supply Current ($V_{\text{CC}} = +24\text{ V}$, $I_{\text{O}} = 0$, $T_{\text{amb}} = +25\text{ }^{\circ}\text{C}$)	–	4	10	mA
	High Level	–	2	–	
	Low Level	–	–	–	
V_{CM}	Common-mode Input Voltage Range	2	–	$V_{\text{CC}} - 2$	V
I_{SC}	Short-circuit Current ($T_{\text{amb}} = +25\text{ }^{\circ}\text{C}$, $V_{\text{CC}} = +24\text{ V}$, $R_{\text{SC}} = 3.3\text{ }\Omega$)	–	250	–	mA
$V_{\text{CC}} - V_{\text{O}}$	Output Saturation Voltage (output high) ($V_{\text{I}}^{+} - V_{\text{I}}^{-} \geq +50\text{ mV}$, $I_{\text{O}} = 150\text{ mA}$, $R_{\text{SC}} = 0$, $T_{\text{j}} = +25\text{ }^{\circ}\text{C}$)	–	1.2	1.8	V
I_{OL}	Output Leakage Current (output low) $V_{\text{O}} = 0\text{ V}$, $V_{\text{CC}} = +24\text{ V}$ $T_{\text{j}} = +25\text{ }^{\circ}\text{C}$ $T_{\text{j}} = +85\text{ }^{\circ}\text{C}$	– –	1 –	100 500	μA
I_{OS}	Minimum Short-circuit Output Current $T_{\text{amb}} = +25\text{ }^{\circ}\text{C}$, $V_{\text{CC}} = +24\text{ V}$, $R_{\text{SC}} = \infty$	–	50	–	mA

Notes : 1. For operating at high temperatures, the TDE3207 must be derated based on a $+150\text{ }^{\circ}\text{C}$ maximum junction temperature and a junction-ambient thermal resistance of $110\text{ }^{\circ}\text{C/W}$.
2. The offset voltage given is the maximum value of input voltage required to drive the output voltage within 2 V of the ground or the supply voltage.

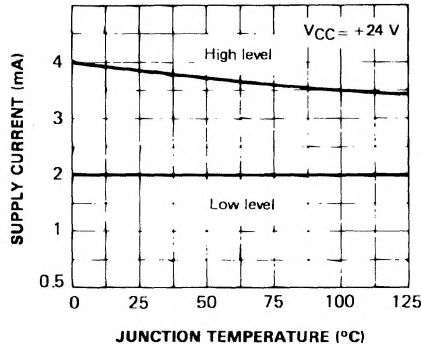
TYPICAL APPLICATIONS**BASIC CIRCUIT**

* D1 required for inductive loads

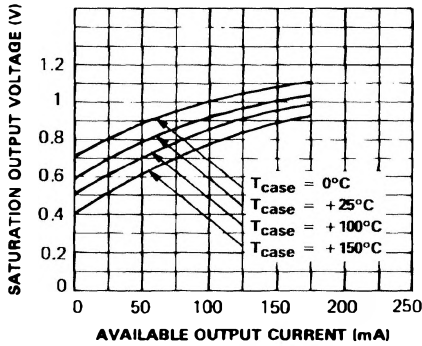
AVAILABLE OUTPUT CURRENT VERSUS
LIMITING RESISTOR



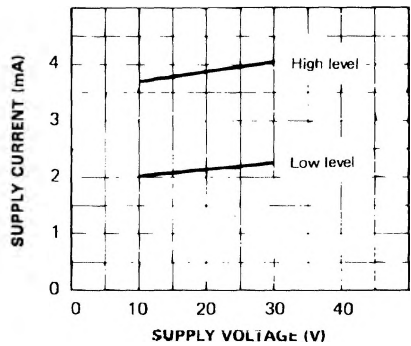
SUPPLY CURRENT VERSUS JUNCTION
TEMPERATURE



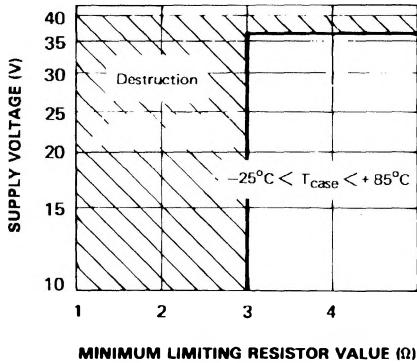
SATURATION OUTPUT VOLTAGE VERSUS
CASE TEMPERATURE AND AVAILABLE
OUTPUT CURRENT



SUPPLY CURRENT VERSUS SUPPLY
VOLTAGE



SUPPLY VOLTAGE
vs
MINIMUM LIMITING RESISTOR VALUE



OUTPUT CURRENT BOOSTING (5 A)

