

7-Unit 400mA Darlington Transistor Array

IR2403

T-43-25

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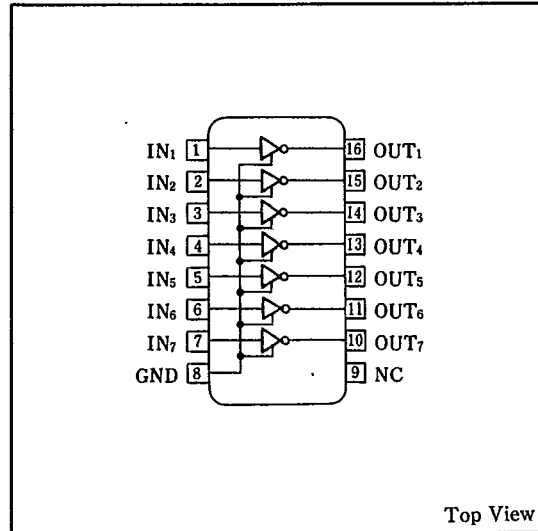
Description

The IR2403 is a 7-circuit driver. This IC can be used for directly driving high output current relays and LED digital display devices.

Features

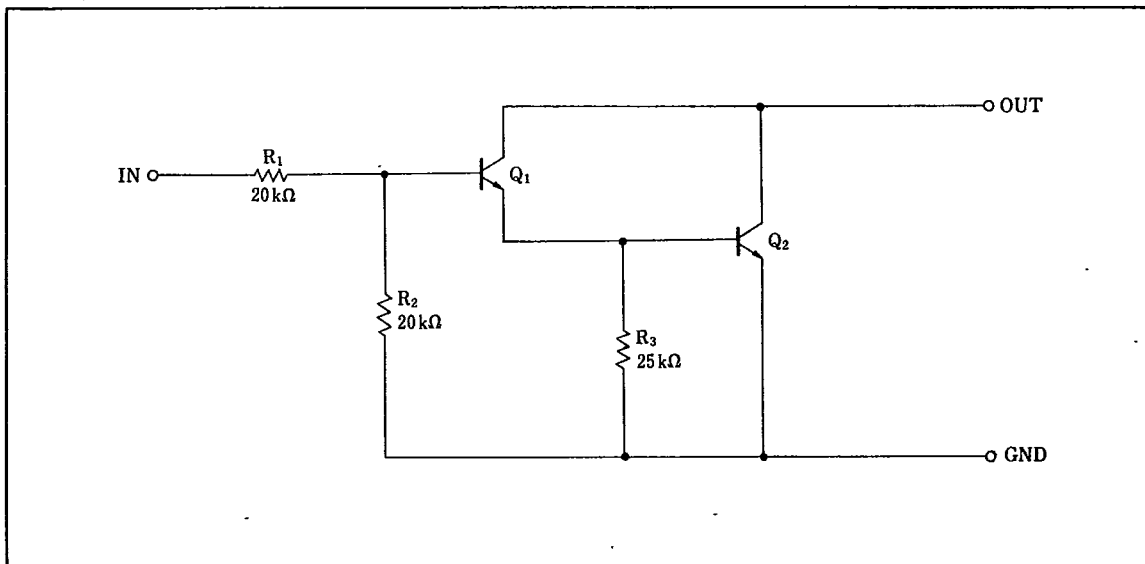
1. High output current, $I_{OUT}=400\text{mA}$ (MAX.)
2. High output breakdown voltage
 $BV_{CEO}=45\text{V}$ (MAX.)
3. Directly driven by MOS output
4. Darlington construction
5. 16-pin dual-in-line package

Pin Connections



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Equivalent Circuit



SHARP

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■ Absolute Maximum Ratings

| Parameter | Symbol | Condition | Rating | Unit |
|---|-----------------------------|-----------------------------|------------|-------|
| Supply voltage | V_{CC} | | 45 | V |
| Output current *1 | I_{OUT} | Each circuit | 400 | mA |
| Input voltage | V_{IN} | | 45 | V |
| Breakdown voltage between collector-base | BV_{CBO} | | 45 | V |
| Breakdown voltage between collector-emitter | BV_{CEO} | | 45 | V |
| Power dissipation | P_D | $T_a \leq 25^\circ\text{C}$ | 650 | mW |
| P_D derating ratio | $\Delta P_D/^\circ\text{C}$ | $T_a > 25^\circ\text{C}$ | 6.5 | mW/°C |
| Operating temperature | T_{opr} | | -25 ~ +75 | °C |
| Storage temperature | T_{stg} | | -55 ~ +125 | °C |

*1 Duty cycle 8% or less, repetitive frequency 10Hz or more.

■ Recommended Operating Conditions

| Parameter | Symbol | Condition | Rating | Unit |
|-----------------------|-----------|-------------|------------|------|
| Max. output voltage | V_{OM} | | 45 or less | V |
| Operating temperature | T_{opr} | | -20 ~ +75 | °C |
| Output current | I_{OUT} | at 8% duty | 0 ~ 400 | mA |
| | | at 50% duty | 0 ~ 150 | |

* Repetitive frequency 10Hz or more.

■ Electrical Characteristics

(Ta = -25 ~ +75°C)

| Parameter | Symbol | Condition | MIN. | TYP. | MAX. | Unit |
|--------------------------|--------------|---|-------|------|------|---------------|
| Supply voltage | V_{CC} | | | | 45 | V |
| ON-state input current | $I_{I\ ON}$ | $V_{IN} = 17\text{V}, I_{OUT} = 0\text{mA}$ | | 0.8 | 1.5 | mA |
| ON-state output voltage | $V_{O\ ON1}$ | $V_{IN} = 13\text{V}, I_{OUT} = 400\text{mA}$ | | | 2.2 | V |
| | $V_{O\ ON2}$ | $V_{IN} = 13\text{V}, I_{OUT} = 200\text{mA}$ | | | 1.4 | |
| | $V_{O\ ON3}$ | $V_{IN} = 13\text{V}, I_{OUT} = 100\text{mA}$ | | | 1.2 | |
| OFF-state output current | $I_{O\ OFF}$ | $V_{IN} = 0\text{V}, V_{OUT} = 45\text{V}$ | | | 100 | μA |
| DC current amplitude | h_{FE} | $V_{CE} = 2.5\text{V}, I_C = 300\text{mA}$ | 1,000 | | | |

■ Electrical Characteristic Curve

Output current—Duty cycle Characteristics

