T-43-25
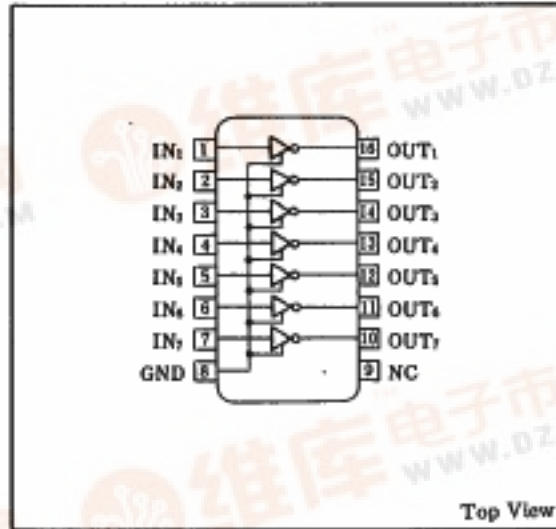
IR2403 7-Unit 400mA Darlington Transistor Array

■ 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.
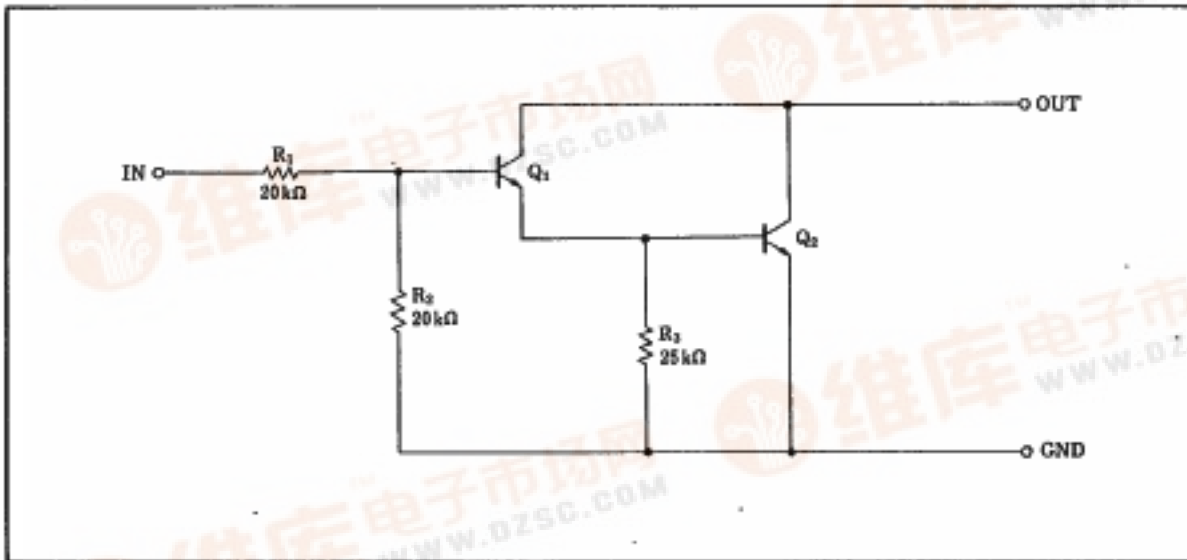
■ Features

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

■ Pin Connections

IN₁ 1	16 OUT₁
IN₂ 2	15 OUT₂
IN₃ 3	14 OUT₃
IN₄ 4	13 OUT₄
IN₅ 5	12 OUT₅
IN₆ 6	11 OUT₆
IN₇ 7	10 OUT₇
GND 8	9 NC

Top View

■ Equivalent Circuit

IN o—[R₁ 20kΩ]—•— Q₁ —————•——————o OUT

R₂ 20kΩ   R₃ 25kΩ   Q₂

o GND

7-Unit 400mA Darlington Transistor Array   *T-43-25*   IR2403

■ 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	$Ta \leq 25°C$	650	mW
P_D derating ratio	$\Delta P_D/°C$	$Ta > 25°C$	6.5	mW/°C
Operating temperature	T_{opr}		$-25 \sim +75$	°C
Storage temperature	T_{stg}		$-55 \sim +125$	°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}		$-20 \sim +75$	°C
Output current	I_{OUT}	at 8% duty	$0 \sim 400$	mA
		at 50% duty	$0 \sim 150$	

* Repetitive frequency 10Hz or more.

■ Electrical Characteristics

$(Ta = -25 \sim +75°C)$

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

■ Electrical Characteristic Curve

Output current—Duty cycle Characteristics