

IR2419 6-Unit 400mA Darlington Transistor Array

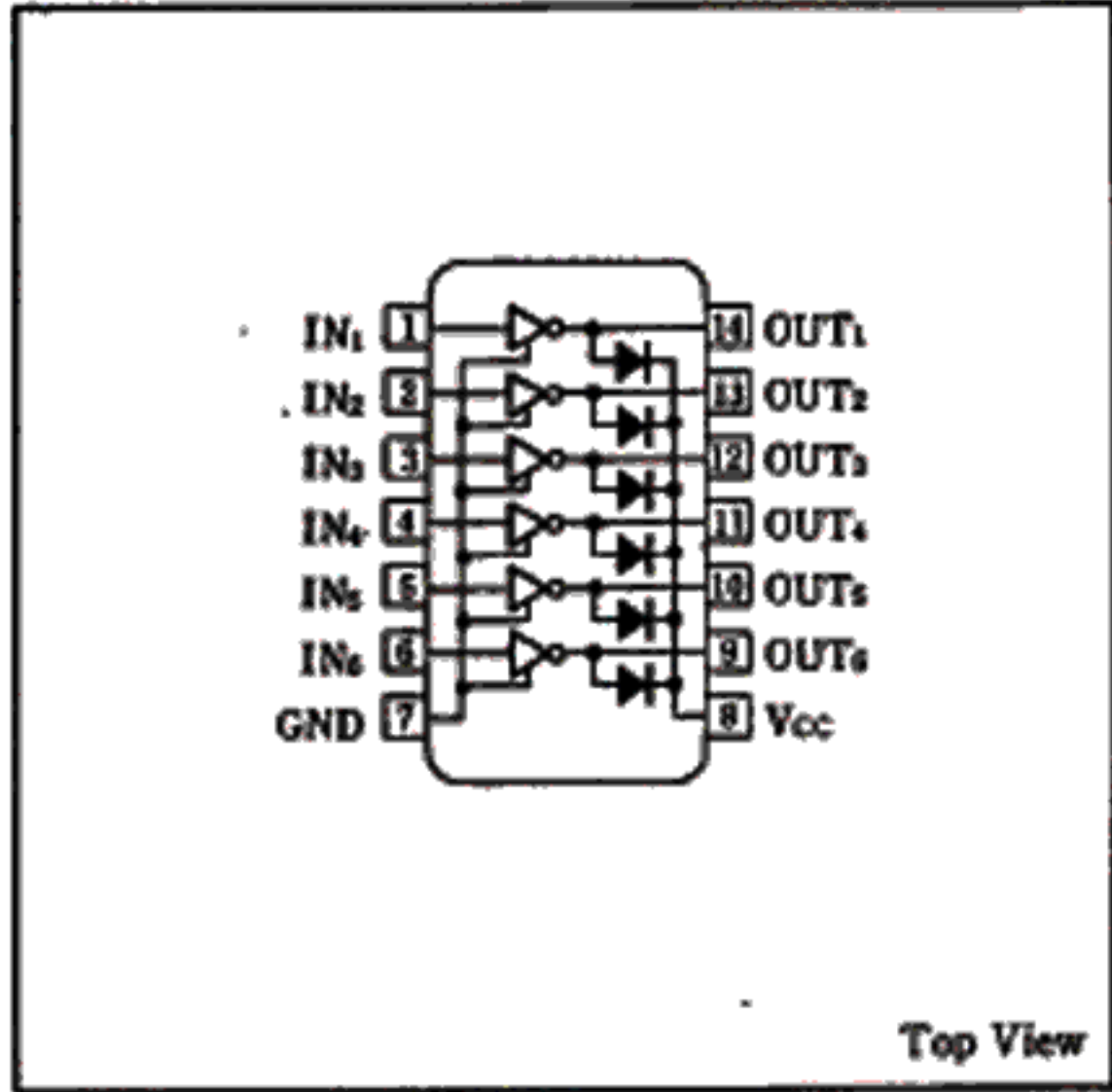
■ Description

The IR2419 is a 6-circuit driver. The internal clamping diodes enable the IC to drive the inductive load directly.

■ Features

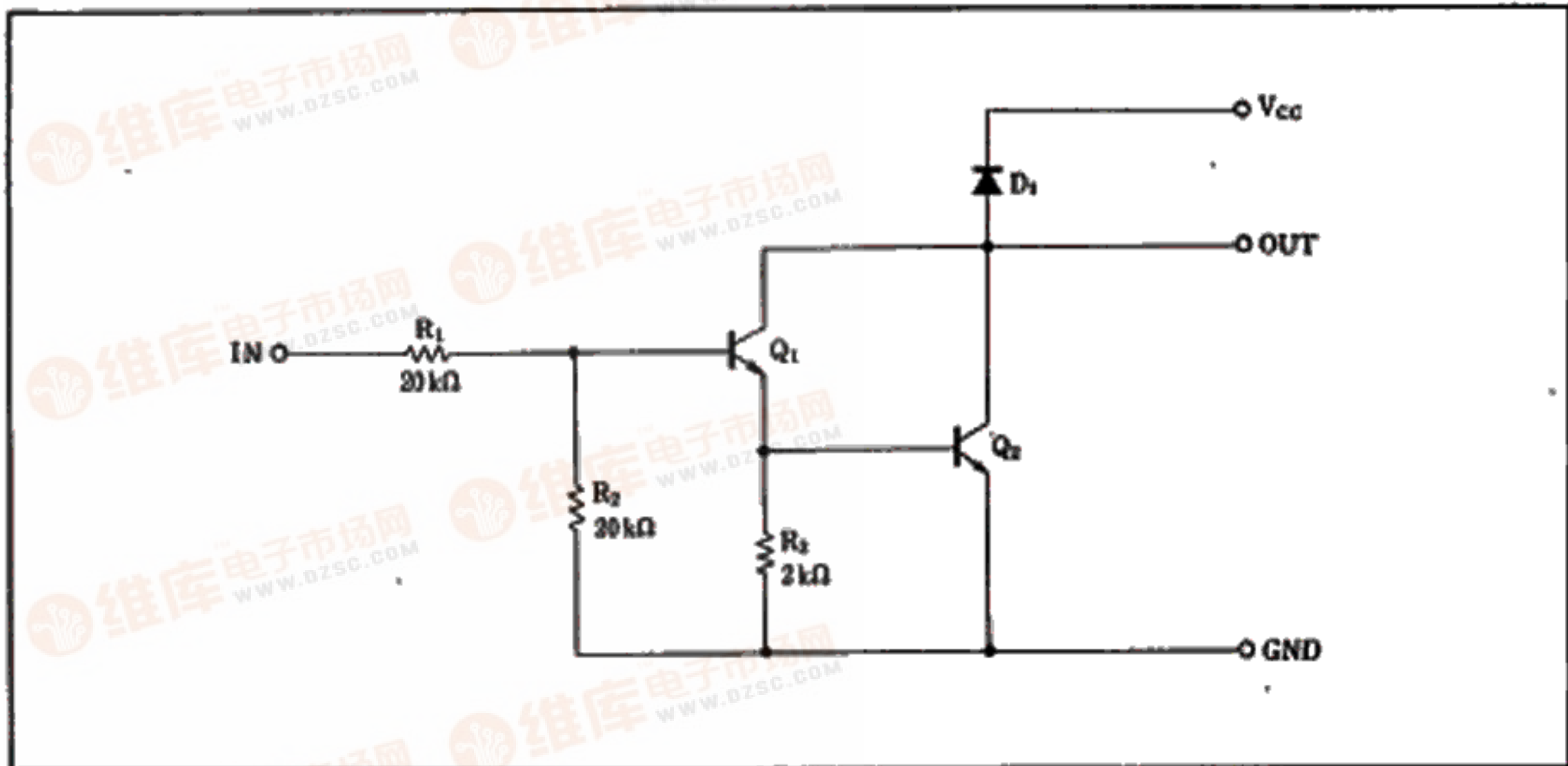
1. High output current, $I_{OUT} = 400\text{mA}$ (MAX.)
2. High output breakdown voltage $BV_{CEO} = 45\text{V}$ (MAX.)
3. Directly driven by MOS output
4. Internal output clamping diode
5. Darlington construction
6. 14-pin dual-in-line package

■ Pin Connections



Top View

■ Equivalent Circuit



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}		0- V_{CC}	V
Breakdown voltage between collector-base	BV_{CBO}		45	V
Breakdown voltage between collector-emitter	BV_{CEO}		45	V
Forward current	I_F	Applies to clamp diode	40	mA
Surge current	I_{SURGE}	Applies to clamp diode	400	mA
Load inductance	L_L		100	mH
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/ $^\circ\text{C}$
Operating temperature	T_{OP}		-25-+75	$^\circ\text{C}$
Storage temperature	T_{STG}		-55-+125	$^\circ\text{C}$

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

Recommended Operating Conditions

Parameter	Symbol	Condition	Rating	Unit
Max. output voltage	V_{OM}		45	V
Operating temperature	T_{OP}		-20-+75	$^\circ\text{C}$
Output current	I_{OUT}	at 10% duty	0-400	mA
		at 50% duty	0-150	

Repetitive frequency 10Hz or more.

Electrical Characteristics

($T_a = -25 - +75^\circ\text{C}$)

Parameter	Symbol	Condition	MIN.	TYP.	MAX.	Unit
Supply voltage	V_{CC}				45	V
ON-state input current	$I_{S\ ON}$	$V_{IN} = 17\text{V}, I_{OUT} = 0\text{mA}$		0.8	1.5	mA
ON-state output voltage	V_{ON1}	$V_{IN} = 14\text{V}, I_{OUT} = 400\text{mA}$			2.2	V
	V_{ON2}	$V_{IN} = 14\text{V}, I_{OUT} = 200\text{mA}$			1.4	
OFF-state output current	$I_{O\ OFF}$	$V_{IN} = 0\text{V}, V_{OUT} = 45\text{V}$			100	μA
Clamp diode forward voltage	V_F	$I_F = 400\text{mA}$			2.2	V
Clamp diode leakage current	I_R	$V_R = 45\text{V}$			100	μA
DC current amplitude	h_{FE}	$V_{CE} = 2.5\text{V}, I_{OUT} = 300\text{mA}$	1,000			

Electrical Characteristic Curve

Output current—Duty cycle Characteristics

