IR2419 6-Unit 400mA Darlington Transistor Array

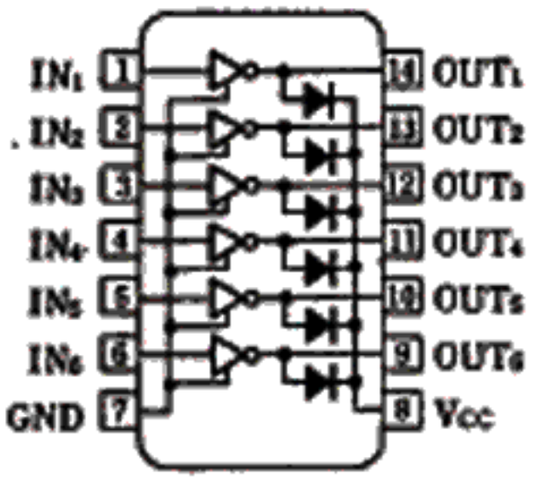
■ Description

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

■ Features

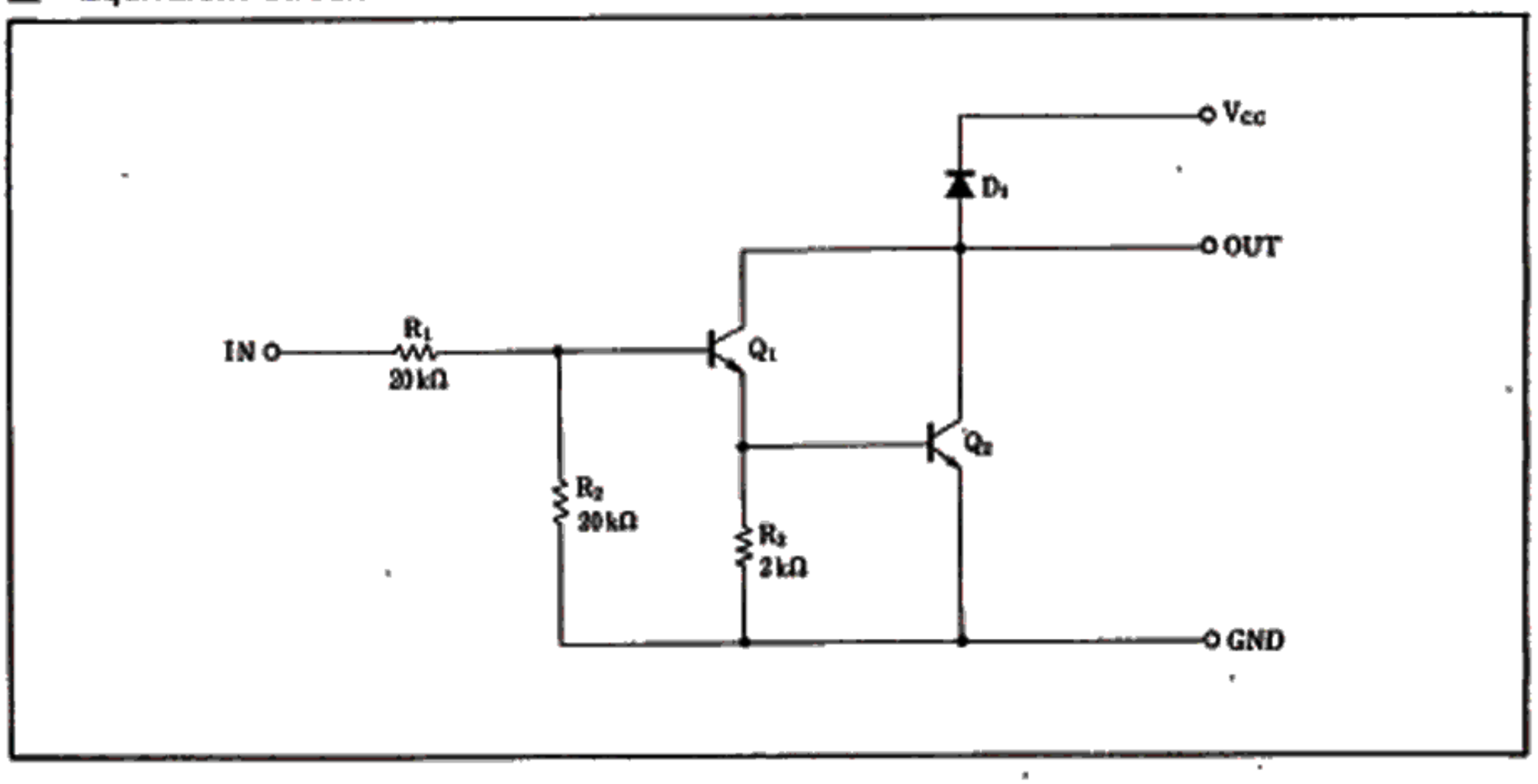
1. High output current, I_{OUT}=400mA (MAX.)
2. High output breakdown voltage
   BV_{CEO}=45V (MAX.)
3. Directly driven by MOS output
4. Internal output clamping diode
5. Darlington construction
6. 14-pin dual-in-line package

■ 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	Ta≦25℃	650	mW
P_D derating ratio	ΔP_D/℃	Ta>25℃	6.5	mW/℃
Operating temperature	T_{opr}		−25—+75	℃
Storage temperature	T_{stg}		−55—+125	℃

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

■ Recommended Operating Conditions

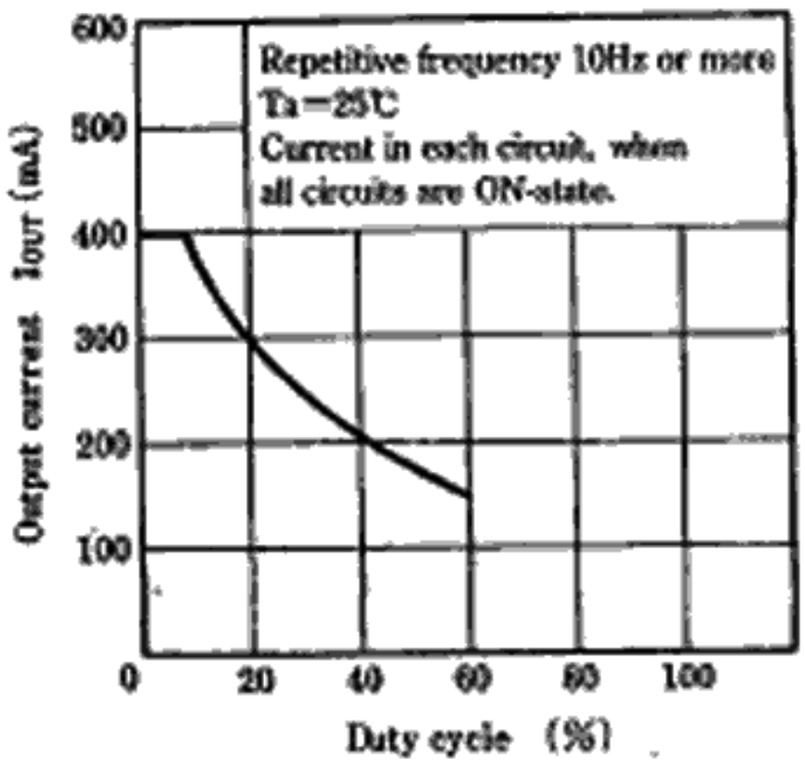
Parameter	Symbol	Condition	Rating	Unit
Max. output voltage	V_{OM}		45	V
Operating temperature	T_{opr}		−20—+75	℃
Output current	I_{OUT}	at 10% duty	0~400	mA
		at 50% duty	0~150	

Repetitive frequency 10Hz or more.

■ Electrical Characteristics

(Ta=−25~+75℃)

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_{ON1}	V_{IN}=14V, I_{OUT}=400mA			2.2	V
	V_{ON2}	V_{IN}=14V, I_{OUT}=200mA			1.4	
OFF-state output current	$I_{O\ OFF}$	V_{IN}=0V, V_{OUT}=45V			100	μA
Clamp diode forward voltage	V_F	I_F=400mA			2.2	V
Clamp diode leakage current	I_R	V_R=45V			100	μA
DC current amplitude	h_{FE}	V_{CE}=2.5V, I_{OUT}=300mA	1,000			

■ Electrical Characteristic Curve

Output current—Duty cycle Characteristics