

# IR2411 7-Unit 400mA Darlington Transistor Array

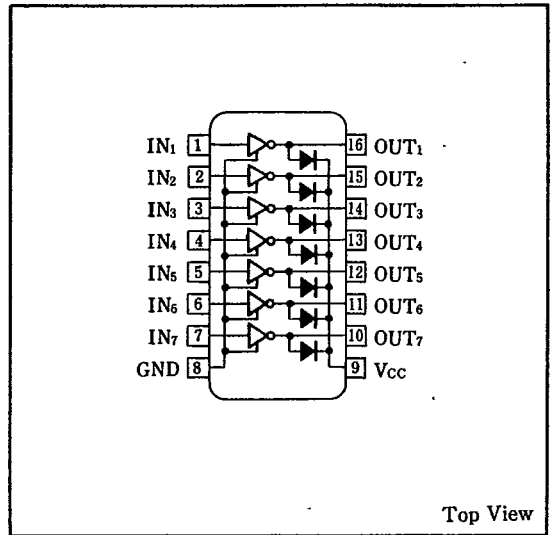
## Description

The IR2411 is a 7-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. 16-pin dual-in-line package

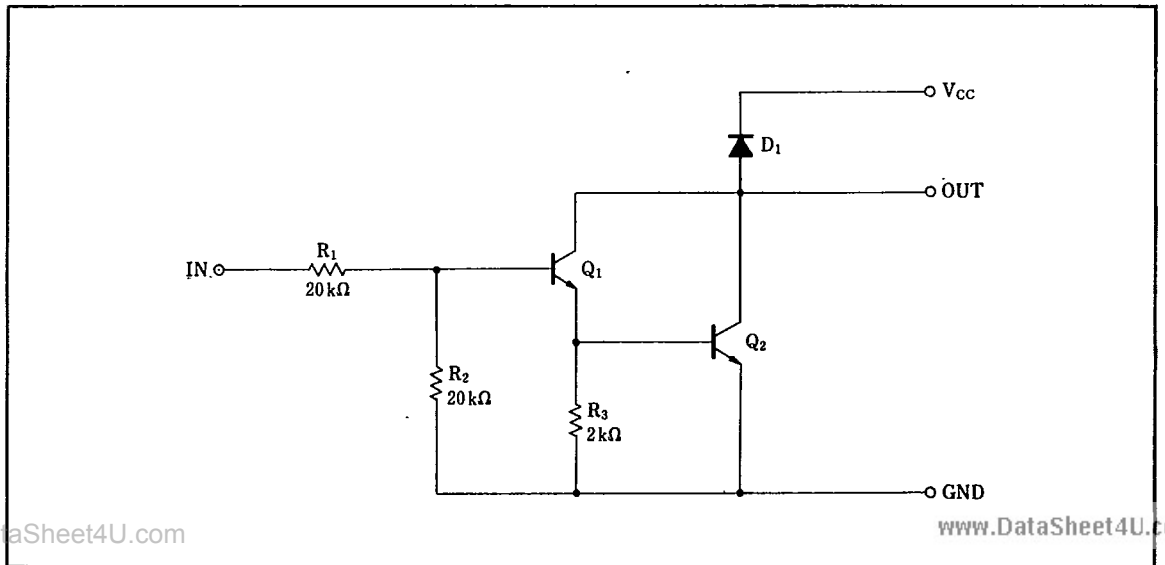
## Pin Connections



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## Equivalent Circuit



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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	$V_{IN}$		-0.5~45	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	4000	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	$T_{opr}$		-25~+75	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55~+125	$^\circ\text{C}$

\*1 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	$^\circ\text{C}$
Output current *2	$I_{OUT}$	at 10% duty	0~400	mA
		at 50% duty	0~150	

\*2 Repetitive frequency 10Hz or more.

## Electrical Characteristics

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

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 current	$V_{O\ ON1}$	$V_{IN} = 13\text{V}, I_{OUT} = 400\text{mA}$			2.2	V
	$V_{O\ ON2}$	$V_{IN} = 13\text{V}, I_{OUT} = 200\text{mA}$			1.4	
OFF-state output current	$I_{O\ OFF}$	$V_{IN} = 0\text{V}, V_{OUT} = 45\text{V}$			100	$\mu\text{A}$
Diode forward voltage	$V_F$	$I_F = 400\text{mA}$			2.2	V
Diode leakage current	$I_R$	$V_R = 45\text{V}$			100	$\mu\text{A}$
DC current amplitude	$I_{FE}$	$V_{CE} = 2.5\text{V}, I_{OUT} = 300\text{mA}$	1,000			
Sustaining voltage	$V_{CER(SUS)}$	$I_{OUT} = 10\text{mA}$			45	V
Input voltage	$V_{IN}$	$I_{OUT} = 100\text{mA}$			4	V

## ■ Electrical Characteristic Curve

### Output current—Duty cycle Characteristics

