

7-Unit 400mA Darlington Transistor Array

IR2C20/IR2C20N

T-52-13-45

IR2C20/IR2C20N 7-Unit 400mA Darlington Transistor Array

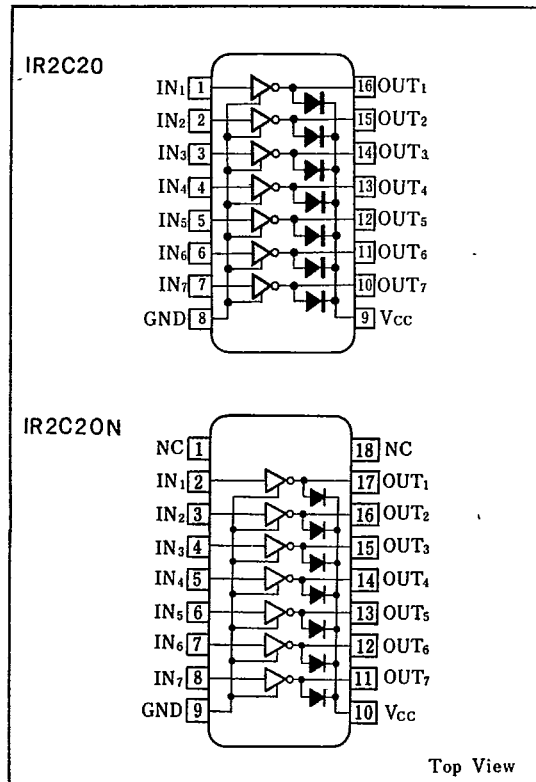
Description

The IR2C20/IR2C20N is a 7-circuit driver. The internal clamping diodes enable the IC to drive the inductive load directly.

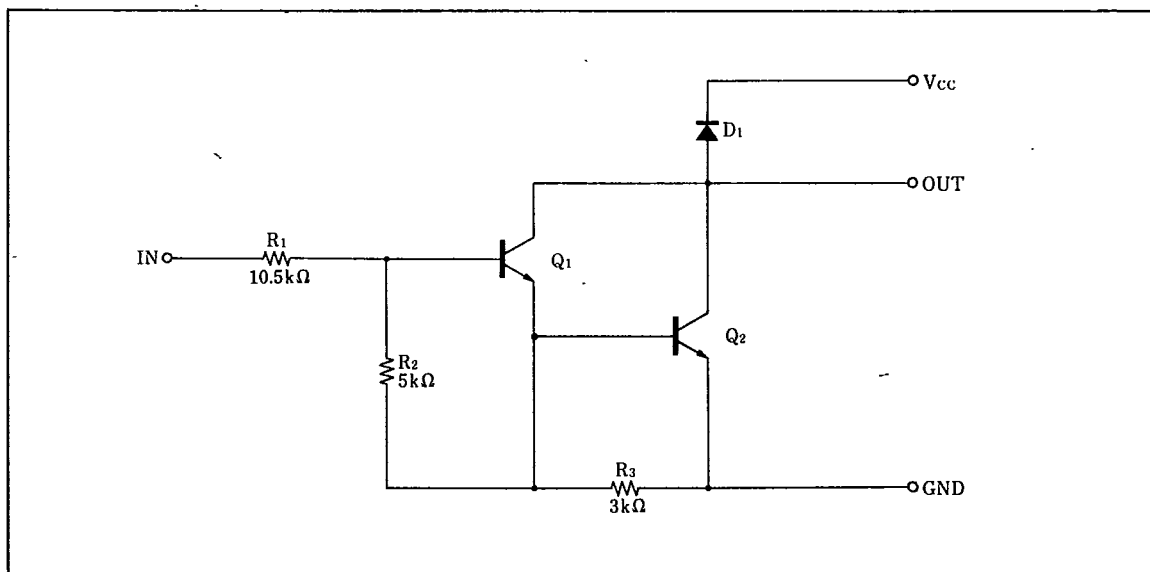
Features

1. High output current $I_{OUT}=400\text{mA}$ (MAX.)
2. High output breakdown voltage $BV_{CEO}=50\text{V}$ (MAX.)
3. Directly driven by MOS output
4. Internal output clamping diode
5. Darlington construction
6. 16-pin dual-in-line package (IR2C20)
18-pin mini-flat package (IR2C20N)

Pin Connections



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~V _{CC}	V
Collector-emiter breakdown voltage	BV _{CEO}			50	V
Forward current	I _F	For clamp diode		40	mA
Surge current	I _{surge}	For clamp diode		400	mA
Load inductance	L _L			100	mH
Power dissipation	P _D	Ta≤25℃	IR2C20	1,000	mW
			IR2C20N	450	
P _D derating ratio	ΔP _D /℃	Ta>25℃	IR2C20	10	mW/℃
			IR2C20N	3.6	
Operating temperature	T _{opr}			-25~+75	℃
Storage temperature	T _{stg}			-55~+150	℃

*1 Duty cycle: 15% or less, repetitive frequency: 10Hz or more

■ Recommended Operating Conditions

Parameter	Symbol	Condition	Rating	Unit
Output voltage	V_{CEO}		50	V
Output current	I_{OUT}	at 15% duty	0~400	mA
		at 50% duty	0~200	

■ Electrical Characteristics

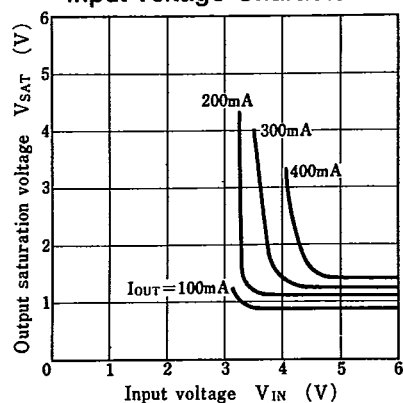
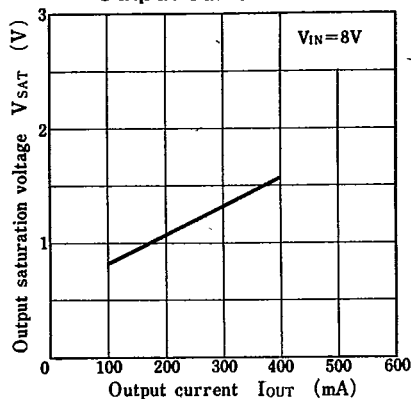
(Ta = -25 ~ +75°C)

Parameter	Symbol	Condition	MIN.	TYP.	MAX.	Unit
Supply voltage	V_{CC}				50	V
ON-State input current	$I_{I\ ON}$	$V_{IN}=10V, I_{OUT}=0mA$		0.9	1.5	mA
ON-State voltage	$V_{O\ ON1}$	$V_{IN}=8V, I_{OUT}=400mA$			2.2	V
	$V_{O\ ON2}$	$V_{IN}=8V, I_{OUT}=200mA$			1.4	
OFF-State output current	$I_{O\ OFF}$	$V_{IN}=0V, V_{CEO}=50V$			100	μA
Diode forward voltage	V_F	For clamp diode, $I_{surge}=400mA$			2.2	V
Diode leakage current	I_R	For clamp diode, $V_R=50V$			100	μA
DC current amplitude	h_{FE}	$V_{CEO}=2.5V, I_{OUT}=300mA, T_a=25^\circ\text{C}$	1,000			
Input "High" voltage	$V_{IN\ ON}$	$I_{OUT}=400mA$	8.0			V
Input "Low" voltage	$V_{IN\ LOW}$				1.0	V
Input capacity	C_{IN}	$f=1MHz$		9		pF

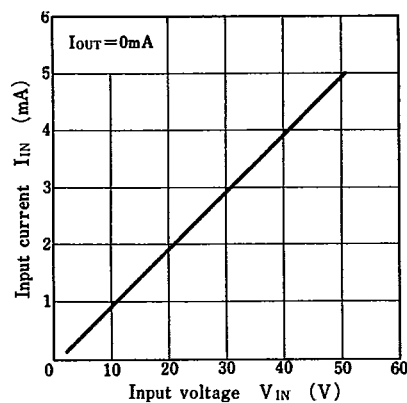
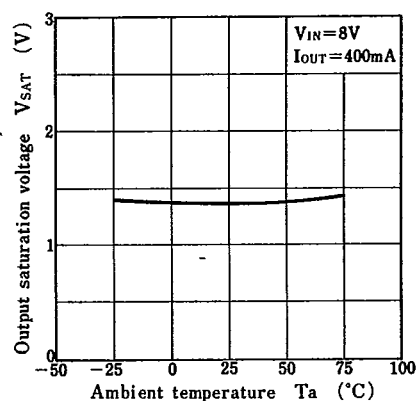
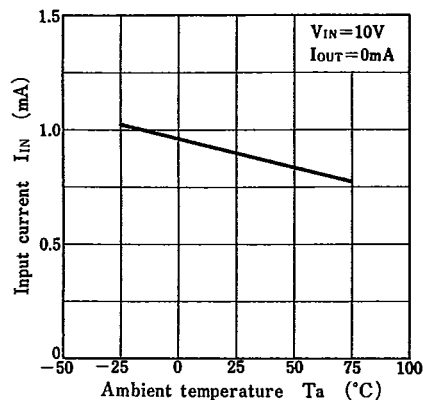
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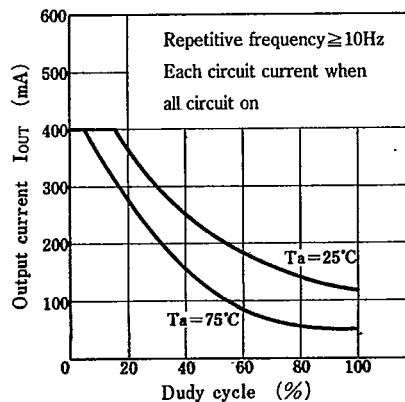
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■ Electrical Characteristic Curves (Unless otherwise specified, $T_a = 25^\circ\text{C}$)Output saturation voltage—
Input voltage CharacteristicsOutput saturation voltage—
Output current Characteristics

Input current—Input voltage Characteristics

Output saturation voltage—
Ambient temperature CharacteristicsInput current—Ambient temperature
Characteristics

Output current—Duty cycle Characteristics



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