INTEGRATED CIRCUIT TOSHIBA TECHNICAL DATA TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT TD62081AP, TD62081CP, TD62081F, TD62081AF TD62082AP, TD62082CP, TD62082F, TD62082AF TD62083AP, TD62083CP, TD62083F, TD62083AF TD62084AP, TD62084CP, TD62084F, TD62084AF SILICON MONOLITHIC

8CH DARLINGTON SINK DRIVER

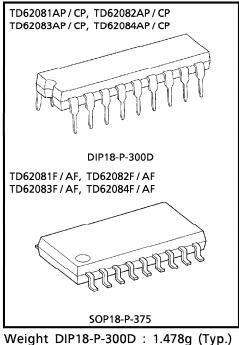
The TD62081AP/CP/F/AF Series are high-voltage, highcurrent darlington drivers comprised of eight NPN darlington pairs.

All units feature integral clamp diodes for switching inductive loads.

Applications include relay, hammer, lamp and display (LED) drivers.

FEATURES

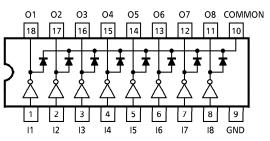
- Output current (single output) 500mA (Max.) (TD62081AP/F/AF series) 400mA (Max.) (TD62081CP series)
- High sustaining voltage output 35V (Min.) (TD62081F series) 50V (Min.) (TD62081AP/AF series) 100V (Min.) (TD62081CP series)
- Output clamp diodes
- Inputs compatible with various types of logic.
- Package type-AP, CP : DIP-18pin
- Package type-F, AF : SOP-18pin



SOP18-P-375 : 0.41g (Typ.)

ТҮРЕ	INPUT BASE RESISTOR	DESIGNATION
TD62081AP/CP/F/AF	External	General Purpose
TD62082AP/CP/F/AF	10.5-k Ω + 7V Zenner diode	14~25V PMOS
TD62083AP/CP/F/AF	2.7k Ω	TTL, 5V CMOS
TD62084AP / CP / F / AF	10.5kΩ	6~15V PMOS, CMOS

PIN CONNECTION (TOP VIEW)



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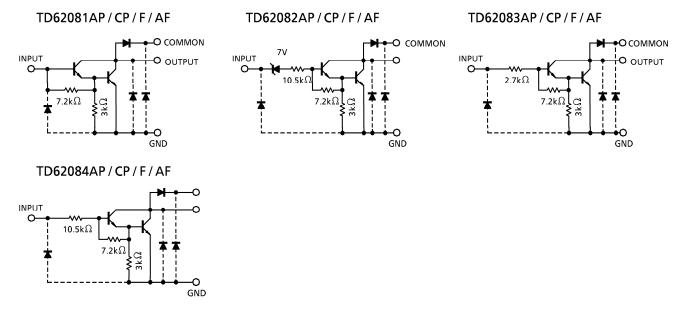
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TD62081AP, TD62081CP, TD62081F, TD62081AF TD62082AP, TD62082CP, TD62082F, TD62082AF TD62083AP, TD62083CP, TD62083F, TD62083AF TD62084AP, TD62084CP, TD62084F, TD62084AF

SCHEMATICS (EACH DRIVER)



(Note) The input and output parasitic diodes cannot be used as clamp diodes.

CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Sustaining	AP, AF CP	VCE (SUS)	- 0.5~50 - 0.5~100	v
Voltage	F		-0.5~35	
Output Current			500	mA / ch
Output Current	СР	Ιουτ	400	IIIA / CI
Input Voltage	Input Voltage		-0.5~30	V
Input Current		l _{IN} (Note 2)	25	mA
Clamp Diode Reverse	AP, AF		50	
Voltage	СР	V _R	100	V
voltage	F		35	
Clamp Diode Forward			500	mA
Current	СР	١ _F	400	
Power Dissipation	AP, CP	P-	1.47	w
	F, AF	PD	0.96	V
Operating Temperature		T _{opr}	- 40~85	°C
Storage Temperature		T _{stg}	- 55~150	°C

MAXIMUM RATINGS (Ta = 25°C)

(Note 1) Except TD62081AP/CP/F/AF

(Note 2) Only TD62081AP/CP/F/AF

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TECHNICAL DATA

TD62081AP, TD62081CP, TD62081F, TD62081AF TD62082AP, TD62082CP, TD62082F, TD62082AF TD62083AP, TD62083CP, TD62083F, TD62083AF TD62084AP, TD62084CP, TD62084F, TD62084AF

RECOMMENDED OPERATING CONDITIONS (Ta = $-40 \sim 85^{\circ}$ C)

CHARACTI	ERISTIC	2	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Sustainin Voltage	g	AP, AF CP	V _{CE} (SUS)		0	—	50 100	v
vontage		F			0	—	35	
				T _{pw} = 25ms, Duty = 10%, 8 Circuits	0	_	347	
		AP, CP		T _{pw} = 25ms, Duty = 50%, 8 Circuits	0	_	123	
Output Current			IOUT	T _{pw} = 25ms, Duty = 10%, 8 Circuits	0	_	268	mA / ch
		F, AF		T _{pw} = 25ms, Duty = 50%, 8 Circuits	0	_	90	
Input Voltage	Excep TD62 CP / F	081AP/	V _{IN}		0	_	30	v
	TD62 CP/F	082AP / / AF			14	_	30	
Input Voltage (Output On)	TD62 CP / F	083AP / / AF	VIN (ON)		3.5 —		30	v
	TD62 CP / F	084AP / / AF			8	_	30	
Input Current	Only TD62 CP / F	081AP / / AF	IIN		0	_	5	mA
		AP, AF			—	_	50	
Clamp Diode Reverse CP		V _R		_		100	V	
voltage		F			_		35	
Clamp Diode Forward		le.		_	_	400	mA	
Current		СР	١F		_	_	320	ma
Power Dissipation	n	AP, CP F, AF	PD		— —	— —	0.52 0.4	w

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TECHNICAL DATA

TD62081AP, TD62081CP, TD62081F, TD62081AF TD62082AP, TD62082CP, TD62082F, TD62082AF TD62083AP, TD62083CP, TD62083F, TD62083AF TD62084AP, TD62084CP, TD62084F, TD62084AF

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARA	CTERISTIC		SYMBOL	TEST CIR- CUIT	TEST CONDI	TION	MIN.	TYP.	MAX.	UNIT
		AP, AF CP F			V _{CE} = 50V V _{CE} = 100V V _{CE} = 35V	Ta = 25°C			50	
Output Leakag	e	AP, AF CP F			$V_{CE} = 50V$ $V_{CE} = 100V$ $V_{CE} = 35V$	Ta = 85°C	_		100	
Current	TD62082	AP, AF CP F	ICEX	1	V _{CE} = 50V V _{CE} = 100V V _{CE} = 35V	V _{IN} = 6V	_	_	500	μΑ
	TD62084	AP, AF CP F			V _{CE} = 50V V _{CE} = 100V V _{CE} = 35V	V _{IN} = 1V	_	_	500	
Collector-Emitte Voltage	er Saturati	on	V _{CE} (sat)	2	IOUT = 350mA, III IOUT = 200mA, III IOUT = 100mA, III	N = 350μA	— — —	1.3 1.1 0.9	1.6 1.3 1.1	V
	TD62 CP/F	082AP / / AF			V _{IN} = 17V	N=230μΑ	_	0.82	1.1	
Input Current	TD62 CP / F	083AP / / AF	^I IN (ON)	2	V _{IN} = 3.85V		—	0.93	1.35	mA
Current	TD620 CP/F				V _{IN} = 5V V _{IN} = 12V			0.35 1.0	0.5 1.45	
			^I IN (OFF)	4	l _{OUT} = 500μA, Ta	a = 85°C	50	65	—	μA
	TD62 CP / F	082AP/ /AF			V _{CE} = 2V, I _{OUT} =	300mA	—	—	13	
	TD62083A				$V_{CE} = 2V, I_{OUT} = V_{CE} = 2V, I_{OUT} =$			_	2.4 2.7	
Input Voltage	CP/F	/ AF	VIN (ON)	5	$V_{CE} = 2V, I_{OUT} =$		_		3.0	v
(Output On)					$V_{CE} = 2V$, $I_{OUT} =$		_	_	5.0	
	TD62	084AP/			$V_{CE} = 2V, I_{OUT} =$		_	_	6.0	
CP/F//		/ AF			$V_{CE} = 2V, I_{OUT} =$	275mA	_	_	7.0	
					$V_{CE} = 2V, I_{OUT} =$	350mA	_	_	8.0	
DC Current Tra	nsfer Rati	0	h _{FE}	2	$V_{CE} = 2V, I_{OUT} =$	350mA	1000	—	—	
Clamp Diode R	everse Cu	rrent	I _R	6	$Ta = 25^{\circ}C$ (Note)				50	μA
					$Ta = 85^{\circ}C \text{ (Note)}$		—		100	
Clamp Diode Fo Voltage	orward	СР	VF	7	I _F = 350mA I _F = 280mA				2.0 1.8	V
Input Capacitar		-	CIN					15		рF

(Note) $V_R = V_R MAX$.

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TD62081AP, TD62081CP, TD62081F, TD62081AF TD62082AP, TD62082CP, TD62082F, TD62082AF TD62083AP, TD62083CP, TD62083F, TD62083AF TD62084AP, TD62084CP, TD62084F, TD62084AF

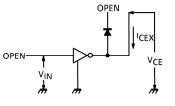
CHARACTERISTIC		SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT								
	AP, AF			$R_L = 125\Omega$, $V_{OUT} = 50V$		0.1	—									
Turn-On Delay	СР	ton		$R_L = 312\Omega, V_{OUT} = 100V$		0.1										
	F										8	$R_{L} = 87.5\Omega, V_{OUT} = 35V$		0.1	—	
	AP, AF		°	$R_L = 125\Omega$, $V_{OUT} = 50V$		0.2		μ s								
Turn-Off Delay	СР	tOFF		$R_{L} = 312\Omega, V_{OUT} = 100V$		3.0	_									
	F			$R_{L} = 87.5\Omega, V_{OUT} = 35V$		0.2	_									

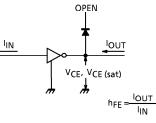
TEST CIRCUIT

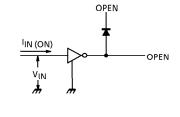
1. ICEX

2. VCE (sat), hFE





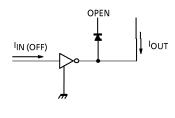


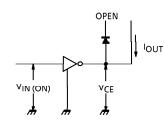


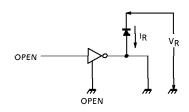
4. IIN (OFF)



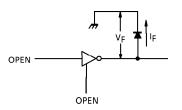






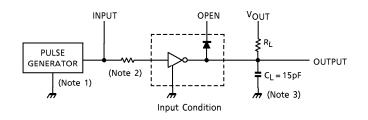


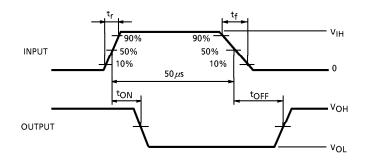
7. V_F



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8. ton, toff





- (Note 1) Pulse Width 50 μ s, Duty Cycle 10% Output Impedance 50 Ω , t_f \leq 5ns, t_f \leq 10ns
- (Note 2) See below.

INPUT CONDITION

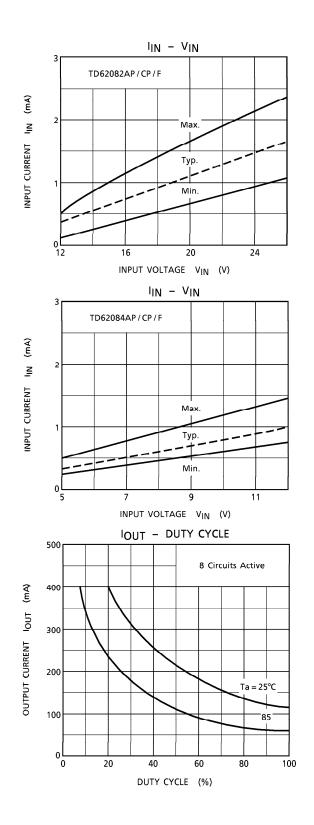
TYPE NUMBER	R1	VIH
TD62081AP/CP/F/AF	2.7k Ω	3V
TD62082AP/CP/F/AF	0Ω	13V
TD62083AP/CP/F/AF	0Ω	3V
TD62084AP / CP / F / AF	0Ω	8V

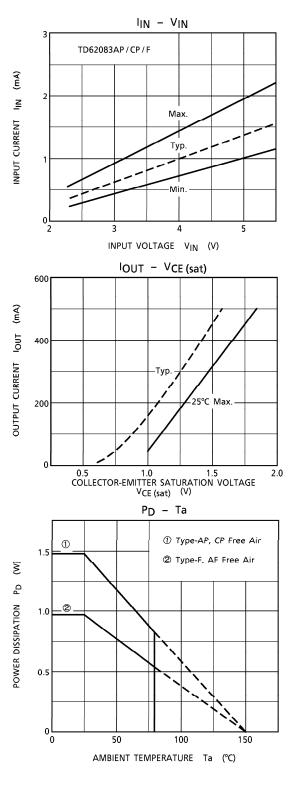
(Note 3) CL includes probe and jig capacitance

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INTEGRATED CIRCUIT TOSHIBA TECHNICAL DATA

TD62081AP, TD62081CP, TD62081F, TD62081AF TD62082AP, TD62082CP, TD62082F, TD62082AF TD62083AP, TD62083CP, TD62083F, TD62083AF TD62084AP, TD62084CP, TD62084F, TD62084AF





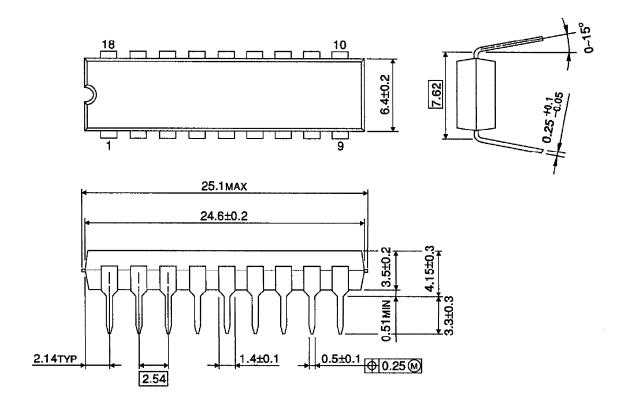
TD62081AP - 7 1995 - 5 - 29 **TOSHIBA CORPORATION**

TD62081AP, TD62081CP, TD62081F, TD62081AF TD62082AP, TD62082CP, TD62082F, TD62082AF TD62083AP, TD62083CP, TD62083F, TD62083AF TD62084AP, TD62084CP, TD62084F, TD62084AF

OUTLINE DRAWING

DIP18-P-300D

Unit : mm

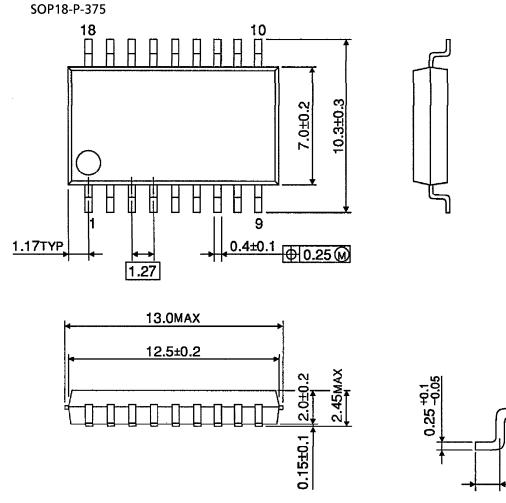


Weight : 1.478g (Typ.)

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OUTLINE DRAWING

TD62081AP, TD62081CP, TD62081F, TD62081AF TD62082AP, TD62082CP, TD62082F, TD62082AF TD62083AP, TD62083CP, TD62083F, TD62083AF TD62084AP, TD62084CP, TD62084F, TD62084AF



Unit : mm

Weight : 0.41g (Typ.)

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0.7±0.2