—TD62064P/AP/BP/F, TD62074P/AP/F

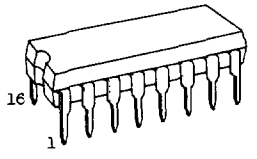
o TD62064P/AP/BP/F HIGH CURRENT DARLINGTON DRIVER
TD62074P/AP/F ISOLATED DARLINGTON DRIVER

FEATURES

. Output Current ..... 1.5A MAX.
. High Sustaining Voltage ..... Type-P,F 35V
Type-AP 50V
Type-BP 80V
. Input compatible with TTL and 5V C-MOS
. Output Clamp Diodes TD62064P/AP/BP/F
. Isolated Darlington Array . TD62074P/AP/F
. Input Resistor 230Ω
. GND/SUB Terminal = HEAT SINK
. Package ..... Type-P,AP,BP DIP-16
Type-F HSOP-16

Unit in mm

TD62064P



DIP16-P-300A

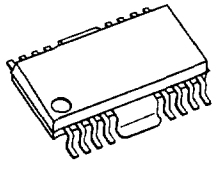
MAXIMUM RATINGS (Ta=25°C, unless otherwise noted)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Sustaining Voltage	P,F	$V_{CE(SUS)}$	-0.5 ∿ +35	V
	AP		-0.5 ∿ +50	
	BP		-0.5 ∿ +80	
Output Current		I_{OUT}	1.5	A
Input Current		I_{IN}	50	mA
Input Voltage	P,AP,F	V_{IN}	17	V
	BP		7	
Clamp Diode Reverse Voltage	P,F	V_R *1	35	V
	AP		50	
	BP		80	
Clamp Diode Forward Current	P	I_F *1	1.25	A
	AP,BP,F		1.5	
Isolation Voltage	P,F	V_{SUB} *2	35	V
	AP		50	
GND TerminaI Voltage		I_{GND}	5.0	A
Power Dissipation	P,AP,BP	P_D	2.7	W
	F		1.4 *3	
Operating Temperature	P	T_{opr}	-30 ∿ +75	°C
	AP,BP,F		-40 ∿ +85	
Storage Temperature		T_{stg}	-55 ∿ +150	°C

*1 TD62064P/AP/BP/F
*2 TD62074P/AP/F
*3 On Glass Epoxy PCB (20 × 20 × 1.6mm, Cu 50%)

Unit in mm

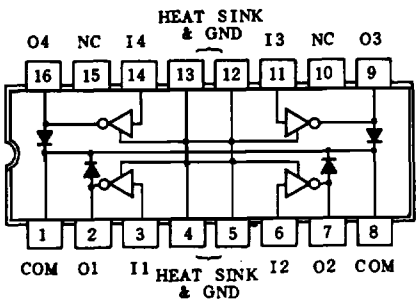
TD62064F



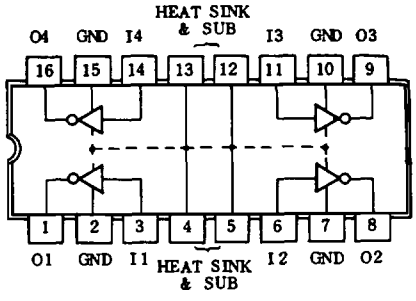
HSOP16-P-300

PIN CONNECTION (TOP VIEW)

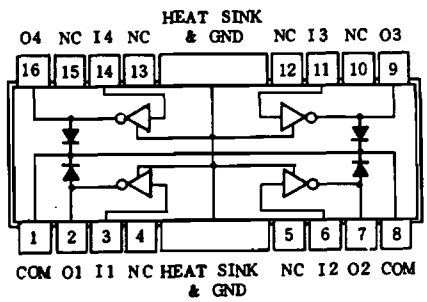
TD62064P/AP/BP



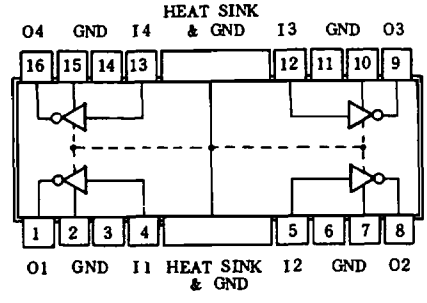
TD62074P/AP



TD62064F

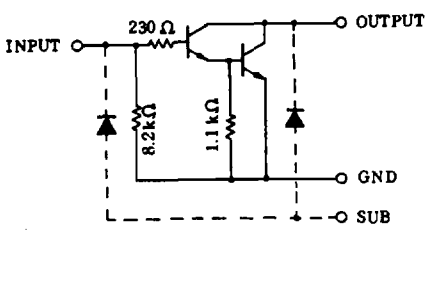


TD62074F

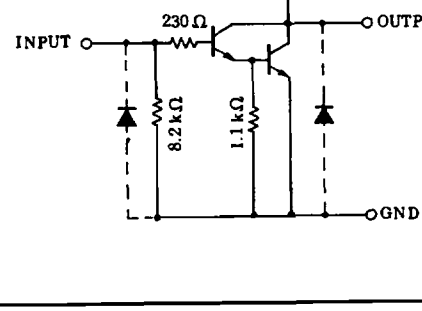


SCHEMATICS (EACH DRIVER)

TD62074P/AP/F



TD62064P/AP/BP/F



RECOMMENDED OPERATING CONDITIONS (Ta = −40～85℃, Type−P : Ta = −30～75℃)

CHARACTERISTIC		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Sustaining Voltage	P, F	$V_{CE(SUS)}$		0	—	35	V
	AP			0	—	50	
	BP			0	—	80	
Output Current	P	I_{OUT}	DC 1 Circuit	0	—	1.25	A
			T_{pw} = 25ms, D_f = 30%, 4 Circuits	0	—	1.0	
	AP, BP		T_{pw} = 25ms, D_f = 8%, 4 Circuits	0	—	1.25	
			T_{pw} = 25ms, D_f = 20%, 4 Circuits	0	—	0.7	
	F		T_{pw} = 25ms, D_f = 20%, 4 Circuits	0	—	1.25	
			T_{pw} = 25ms, D_f = 20%, 4 Circuits	0	—	0.6	
Input Voltage	P, AP, F	V_{IN}		0	—	8	V
	BP			0	—	5.5	
Input Current		I_{IN}		0	—	20	mA
Clamp Diode Reverse Voltage	P, F	V_R		0	—	35	V
	AP			—	—	50	
	BP			—	—	80	
Clamp Diode Forward Current		I_F		—	—	1.25	A
Isolation Voltage	A, F	V_{SUB}	TD62074P/AP/F	—	—	35	V
	AP			—	—	50	
Power Dissipation	P	P_D		—	—	1.2	W
	AP, BP			—	—	1.0	
	F		*	—	—	0.5	

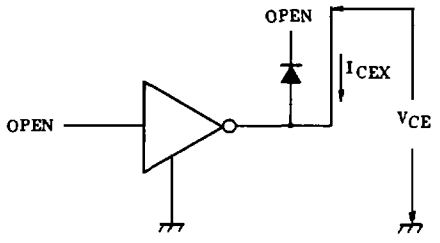
* ON GLASS EPOXY PCB (60×30×1.6mm, Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

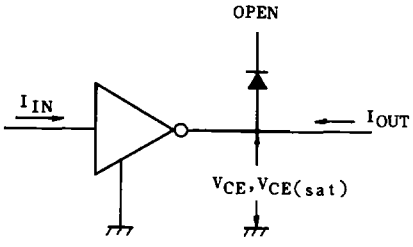
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Output Leak Current	P	I_{CEX}	1	$V_{CE}=35V$, Ta=75°C		—	—	100	μA
	AP			$V_{CE}=50V$, Ta=25°C		—	—	50	
				$V_{CE}=50V$, Ta=85°C		—	—	500	
	BP			$V_{CE}=80V$, Ta=25°C		—	—	50	
				$V_{CE}=80V$, Ta=85°C		—	—	100	
	F			$V_{CE}=35V$, Ta=25°C		—	—	50	
				$V_{CE}=35V$, Ta=85°C		—	—	500	
Collector-Emitter Saturation Voltage	BP	$V_{CE(sat)}$	2	$I_{OUT}=1.25A$, $V_{IN}=2.4V$		—	—	1.6	V
				$I_{OUT}=750mA$, $V_{IN}=2.4V$		—	—	1.25	
	P,AP,F			$I_{OUT}=1.25A$, $I_{IN}=2mA$		—	—	1.6	
	AP,F			$I_{OUT}=750mA$, $I_{IN}=935\mu A$		—	—	1.25	
DC Current Transfer Ratio	P	h_{FE}	2	$V_{CE}=2V$	$I_{OUT}=1A$	—	800	—	
	AP,BP,F				$I_{OUT}=1.25A$	—	1500	—	
Input Voltage	P	$V_{IN(ON)}$	3	$I_{OUT}=1.25A$, $I_{IN}=2mA$		—	—	2.5	V
	AP,BP,F					—	—	2.4	
Clamp Diode Reverse Current	P	I_R	4	$V_R=35V$		—	—	50	μA
	AP			$V_R=50V$, Ta=25°C		—	—	50	
				$V_R=50V$, Ta=85°C		—	—	100	
	BP			$V_R=80V$, Ta=25°C		—	—	50	
				$V_R=80V$, Ta=85°C		—	—	100	
	F			$V_R=35V$, Ta=25°C		—	—	50	
				$V_R=35V$, Ta=85°C		—	—	100	
Clamp Diode Forward Voltage		V_F	5	$I_F=1.25A$		—	—	2	V
Input Capacitance		C_{IN}	6	$V_{IN}=0$, f=1MHz		—	15	—	pF
Turn-On Delay Time	P	t_{ON}	7	$C_L=15pF$	$V_{OUT}=35V$, $R_L=28\Omega$	—	0.1	—	μs
	F				$V_{OUT}=35V$, $R_L=28\Omega$				
	AP				$V_{OUT}=50V$, $R_L=40\Omega$				
	BP				$V_{OUT}=80V$, $R_L=64\Omega$				
Turn-Off Delay Time	P	t_{OFF}			$V_{OUT}=35V$, $R_L=28\Omega$	—	0.2	—	
	F				$V_{OUT}=35V$, $R_L=28\Omega$				
	AP				$V_{OUT}=50V$, $R_L=40\Omega$				
	BP				$V_{OUT}=80V$, $R_L=64\Omega$	—	1.0	—	

TEST CIRCUIT

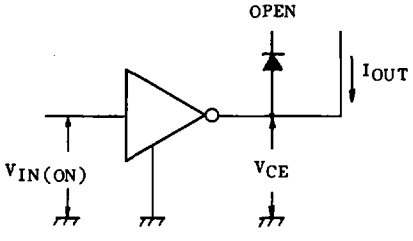
1. I_{CEX}



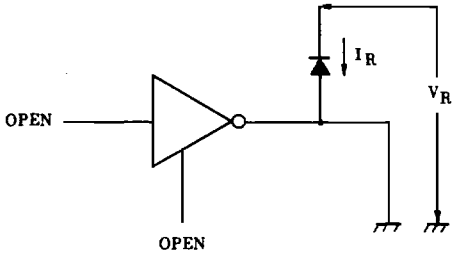
2. $V_{CE(sat)}$, h_{FE}



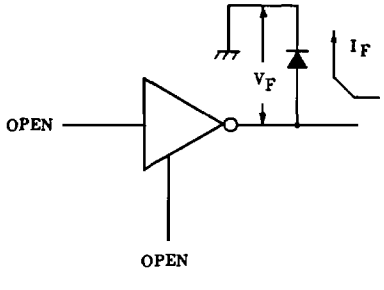
3. $V_{IN(ON)}$



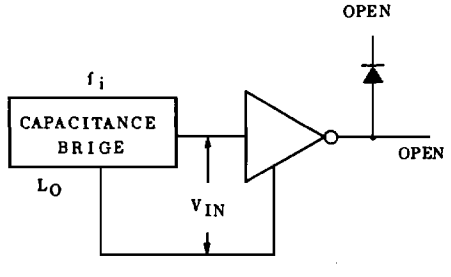
4. I_R



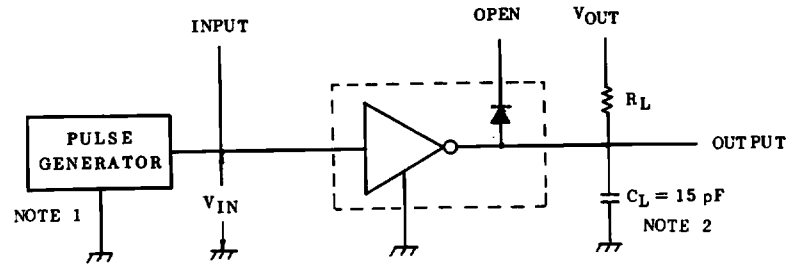
5. V_F

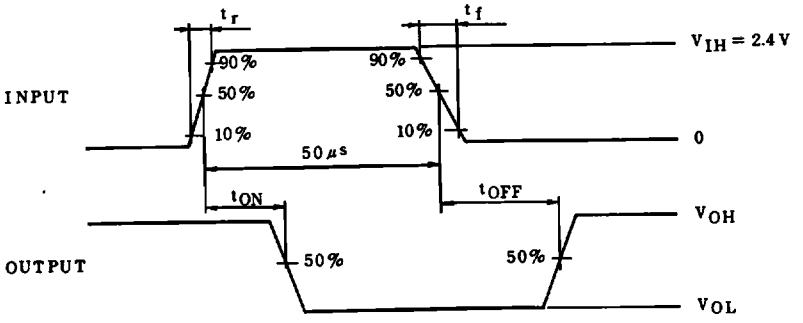


6. C_{IN}



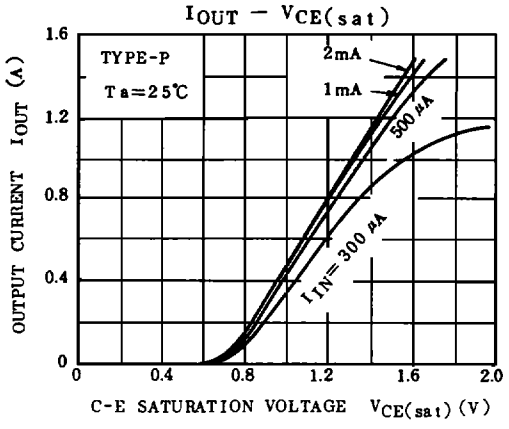
7. t_{ON}, t_{OFF}

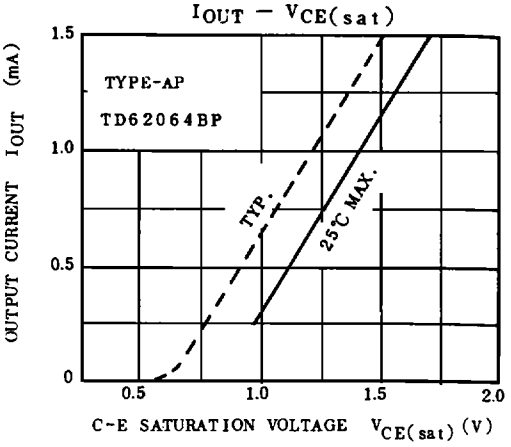


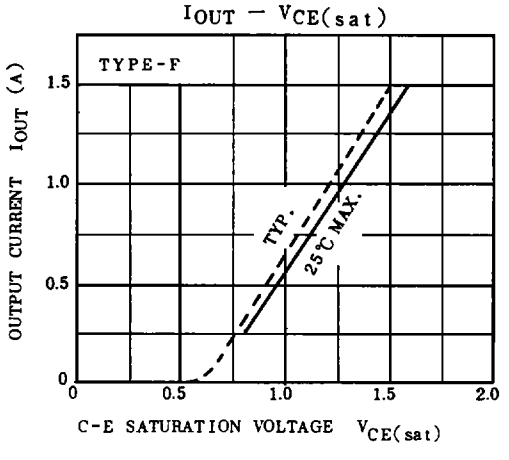


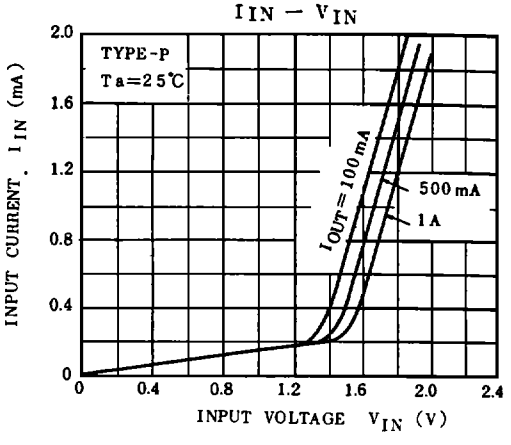
NOTES : 1. Pulse Width 50μs , Duty Cycle 10%, Output Impedance 50Ω
$t_r \leq 5$ns, $t_f \leq 10$ns.

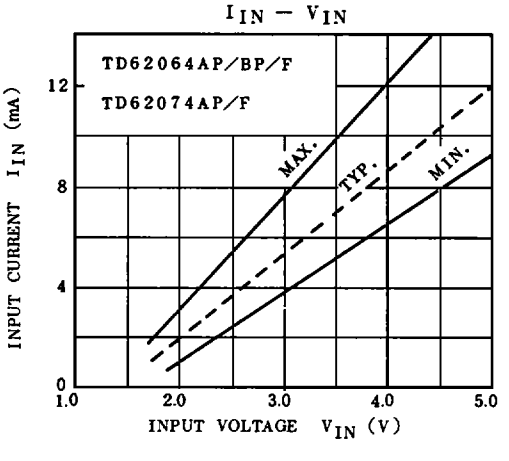
2. C_L includes probe and JIG capacitance.

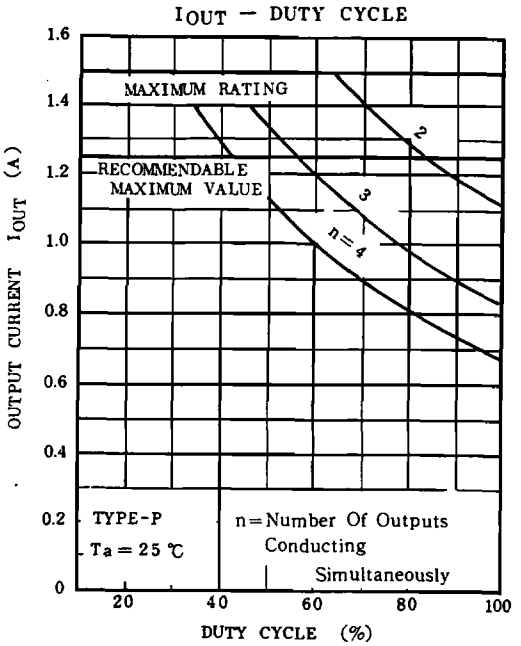

I_{OUT} – $V_{CE(sat)}$
TYPE-P
Ta=25℃
2mA
1mA
500 μA
I_{IN}= 300 μA
OUTPUT CURRENT I_{OUT} (A)
C-E SATURATION VOLTAGE $V_{CE(sat)}$ (V)

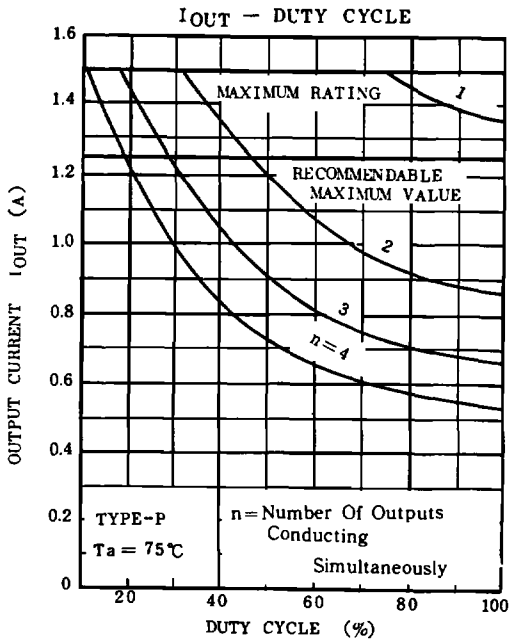

I_{OUT} – $V_{CE(sat)}$
TYPE-AP
TD62064BP
TYP.
25℃ MAX.
OUTPUT CURRENT I_{OUT} (mA)
C-E SATURATION VOLTAGE $V_{CE(sat)}$ (V)

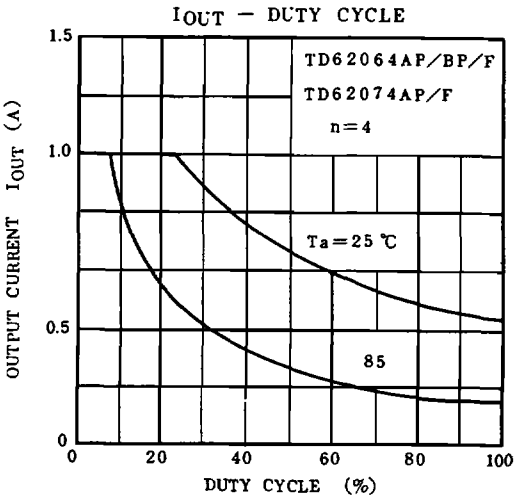

I_{OUT} – $V_{CE(sat)}$
TYPE-F
TYP.
25℃ MAX.
OUTPUT CURRENT I_{OUT} (A)
C-E SATURATION VOLTAGE $V_{CE(sat)}$

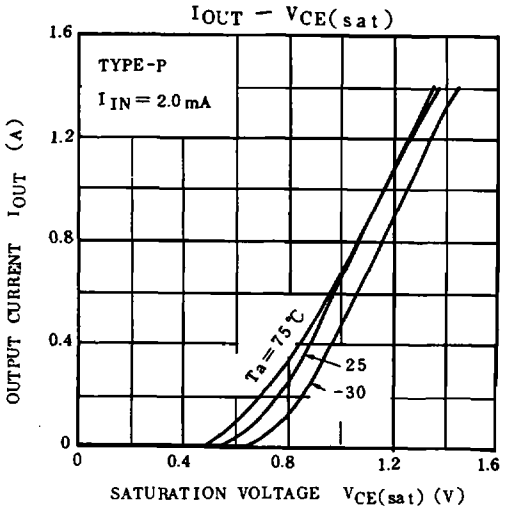

I_{IN} – V_{IN}
TYPE-P
Ta=25℃
I_{OUT}=100 mA
500 mA
1A
INPUT CURRENT I_{IN} (mA)
INPUT VOLTAGE V_{IN} (V)


I_{IN} – V_{IN}
TD62064AP/BP/F
TD62074AP/F
MAX.
TYP.
MIN.
INPUT CURRENT I_{IN} (mA)
INPUT VOLTAGE V_{IN} (V)

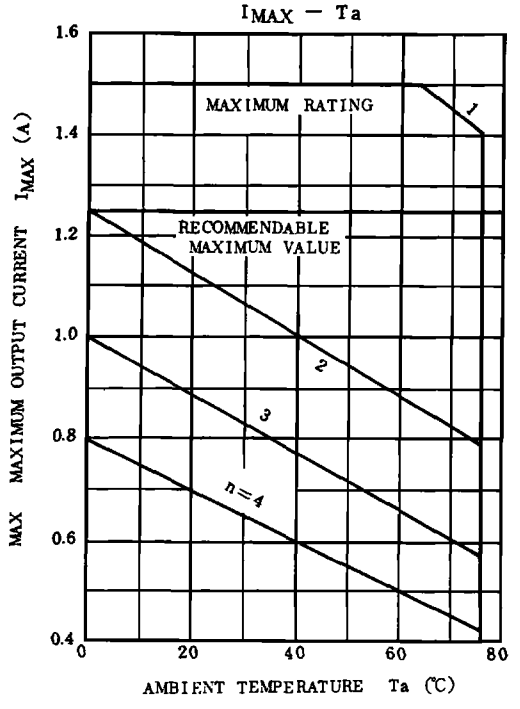

IOUT – DUTY CYCLE
MAXIMUM RATING
RECOMMENDABLE MAXIMUM VALUE
2
3
n=4
TYPE-P
Ta = 25 ℃
n=Number Of Outputs Conducting Simultaneously
OUTPUT CURRENT IOUT (A)
DUTY CYCLE (%)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
20
40
60
80
100


IOUT – DUTY CYCLE
MAXIMUM RATING
1
RECOMMENDABLE MAXIMUM VALUE
2
3
n=4
TYPE-P
Ta = 75℃
n=Number Of Outputs Conducting Simultaneously
OUTPUT CURRENT IOUT (A)
DUTY CYCLE (%)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
20
40
60
80
100

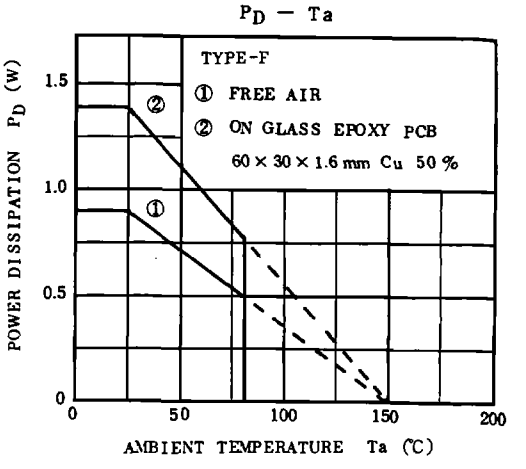

IOUT – DUTY CYCLE
TD62064AP/BP/F
TD62074AP/F
n=4
Ta=25 ℃
85
OUTPUT CURRENT IOUT (A)
DUTY CYCLE (%)
1.5
1.0
0.5
0
0
20
40
60
80
100


IOUT – VCE(sat)
TYPE-P
IIN = 2.0 mA
Ta=75℃
25
-30
OUTPUT CURRENT IOUT (A)
SATURATION VOLTAGE VCE(sat) (V)
1.6
1.2
0.8
0.4
0
0
0.4
0.8
1.2
1.6

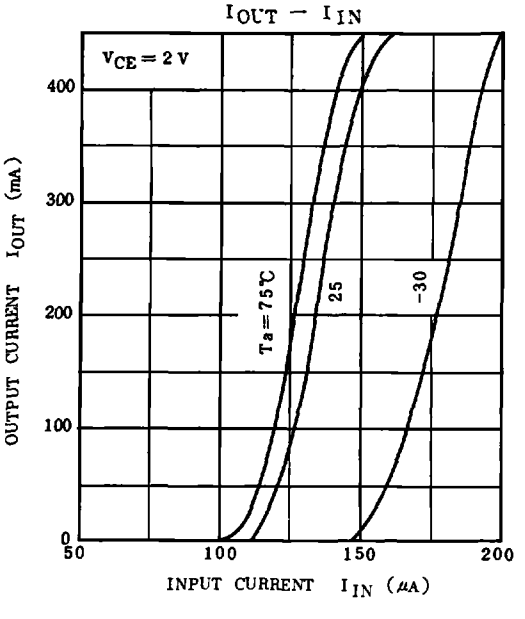
I_{MAX} – Ta



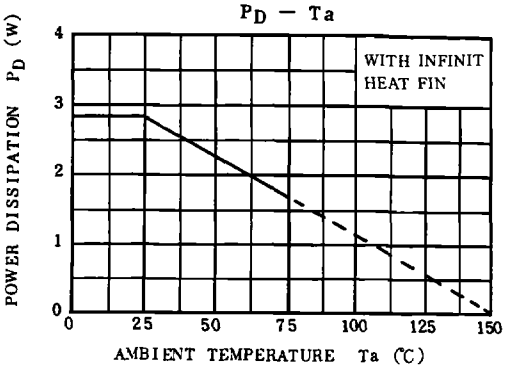
P_D – Ta



I_{OUT} – I_{IN}



P_D – Ta



P_D – Ta