

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62064BP-1, TD62064BF

4ch HIGH-CURRENT DARLINGTON SINK DRIVER

The TD62064BP-1 and TD62064BF are high-voltage, high-current darlington drivers comprised of four NPN darlington pairs.

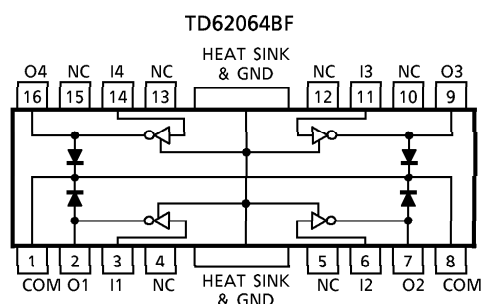
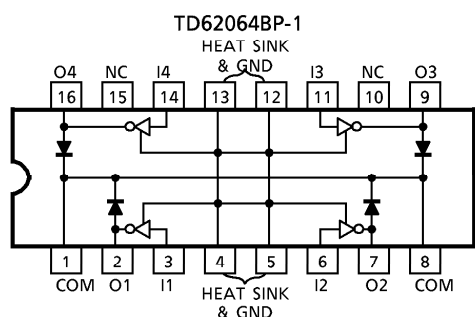
All units feature integral clamp diodes for switching inductive loads.

Applications include relay, hammer, lamp and stepping motor drivers.

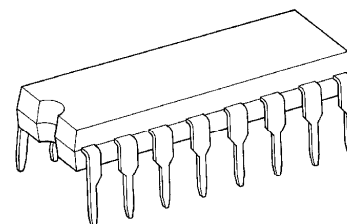
FEATURES

- Package Type BP-1 : DIP16 pin
BF : PFP16 pin
- High Output Sustaining Voltage : $V_{CE(SUS)} = 80V$ (Min.)
- Output Current (Single Output) : $I_{OUT} = 1.5A$ / ch (Max.)
- Output Clamp Diodes
- Input Compatible with TTL and 5V CMOS
- GND and SUB Terminal = Heat Sink

PIN CONNECTION (TOP VIEW)

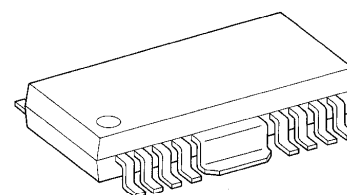


TD62064BP-1



DIP16-P-300-2.54A

TD62064BF

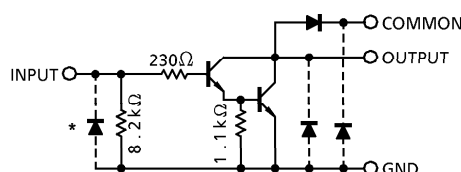


HSOP16-P-300-1.00

Weight
DIP16-P-300-2.54A : 1.11g (Typ.)
HSOP16-P-300-1.00 : 0.50g (Typ.)

SCHEMATICS (EACH DRIVER)

TD62064BP-1 / BF



* : Parasitic

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

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Sustaining Voltage		V _{CE(SUS)}	− 0.5 ~ 80	V
Parasitic Transistor Output Voltage		V _{CEF} *1	80	V
Output Current		I _{OUT}	1.5	A / ch
Input Current		I _{IN}	50	mA
Input Voltage		V _{IN}	7	V
Clamp Diode Reverse Voltage		V _R	80	V
Clamp Diode Forward Current		I _F	1.5	A
Power Dissipation	BP-1	P _D	1.47 / 2.7 *2	W
	BF		0.9 / 1.4 *3	
Operating Temperature		T _{opr}	− 40 ~ 85	°C
Storage Temperature		T _{stg}	− 55 ~ 150	°C

*1 Parasitic Transistor (COMMON - GND - OUTPUT) Output Voltage

*2 On Glass Epoxy PCB (50 × 50 × 1.6mm Cu 50%)

*3 On Glass Epoxy PCB (60 × 30 × 1.6mm Cu 30%)

RECOMMENDED OPERATING CONDITIONS (Ta = −40~85°C)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Sustaining Voltage	V _{CE(SUS)}		0	—	80	V
Output Current	I _{OUT}	DC 1 Circuit, Ta = 25°C	0	—	1250	mA / ch
		T _{pw} = 25ms	0	—	1250	
		4 Circuits	0	—	380	
		T _j = 120°C	0	—	900	
		Ta = 85°C	0	—	170	
Input Voltage	V _{IN}		0	—	5.5	V
	(Output On) V _{IN(ON)}	I _{OUT} = 1.25A	2.5	—	8	V
	(Output Off) V _{IN(OFF)}		0	—	0.4	V
Input Current	I _{IN}		0	—	20	mA
Clamp Diode Reverse Voltage	V _R		0	—	80	V
Clamp Diode Forward Current	I _F		—	—	1.25	A
Power Dissipation	BP-1	P _D	Ta = 85°C *1	—	1.4	W
	BF				0.7	

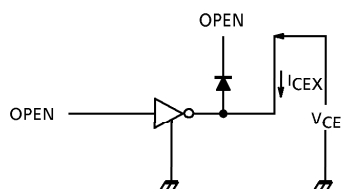
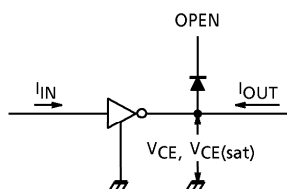
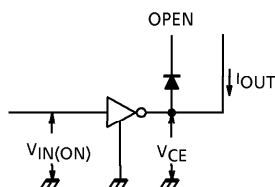
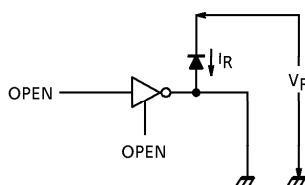
*1 On Glass Epoxy PCB (50 × 50 × 1.6mm Cu 50%)

*2 On Glass Epoxy PCB (60 × 30 × 1.6mm Cu 30%)

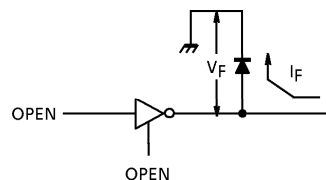
ELECTRICAL CHARACTERISTICS (Ta = 25°C unless otherwise noted)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I_{CEX}	1	$V_{CE} = 80V, T_a = 25^\circ C$	—	—	50	μA
			$V_{CE} = 80V, T_a = 85^\circ C$	—	—	100	
Output Saturation Voltage	$V_{CE(sat)}$	2	$I_{OUT} = 1.25A, V_{IN} = 2.4V$	—	—	1.6	V
			$I_{OUT} = 0.75A, V_{IN} = 2.4V$	—	—	1.25	
DC Current Transfer Ratio	h_{FE}	2	$V_{CE} = 2V, I_{OUT} = 1.25A$	—	1500	—	
Input Voltage (Output On)	$V_{IN(ON)}$	3	$I_{OUT} = 1.25A, I_{IN} = 2mA$	—	—	2.4	V
Clamp Diode Leakage Current	I_R	4	$V_R = 80V, T_a = 25^\circ C$	—	—	50	μA
			$V_R = 80V, T_a = 85^\circ C$	—	—	100	
Clamp Diode Forward Voltage	V_F	5	$I_F = 1.25A$	—	1.5	2.0	V
Input Capacitance	C_{IN}	6	$V_{IN} = 0, f = 1MHz$	—	15	—	pF
Turn-On Delay	t_{ON}	7	$V_{OUT} = 80V, R_L = 68\Omega$	—	0.1	—	μs
Turn-Off Delay	t_{OFF}			—	1.0	—	
Parasitic Transistor Output Voltage	V_{CEF}	8	$I_{CEF} = 150mA$	80	—	—	V

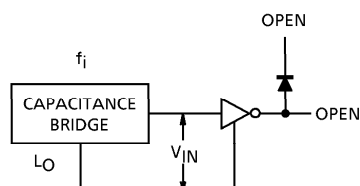
TEST CIRCUIT

1. I_{CEX} 2. $V_{CE(sat)}$, h_{FE} 3. $V_{IN(ON)}$ 4. I_R 

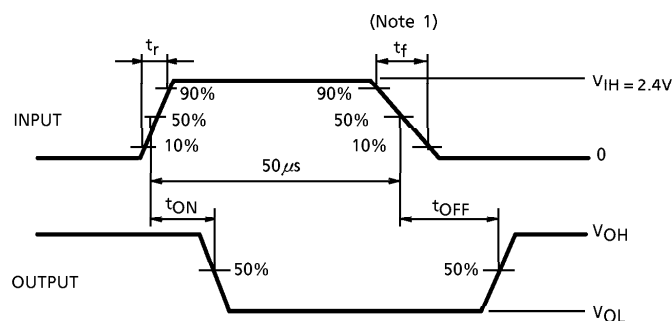
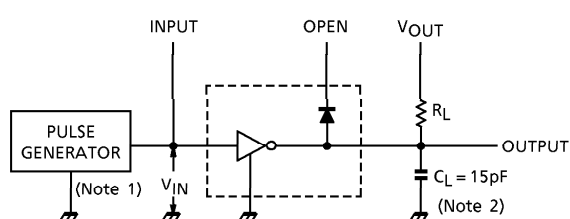
5. V_F



6. C_{IN}

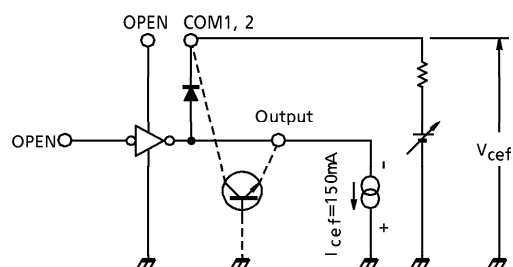


7. t_{ON} , t_{OFF}



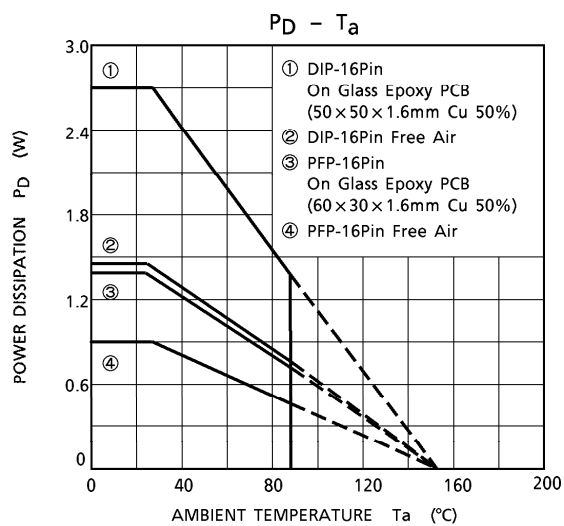
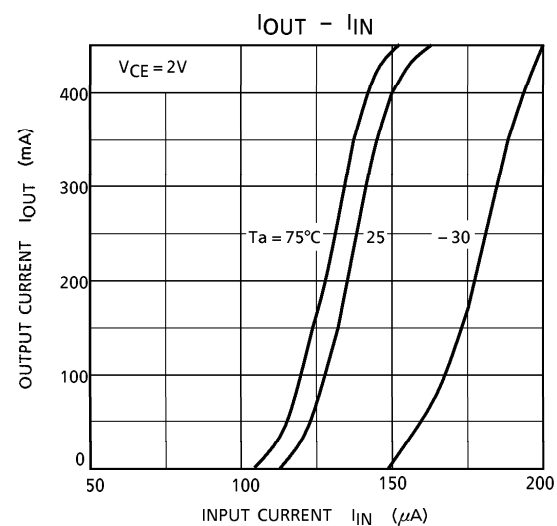
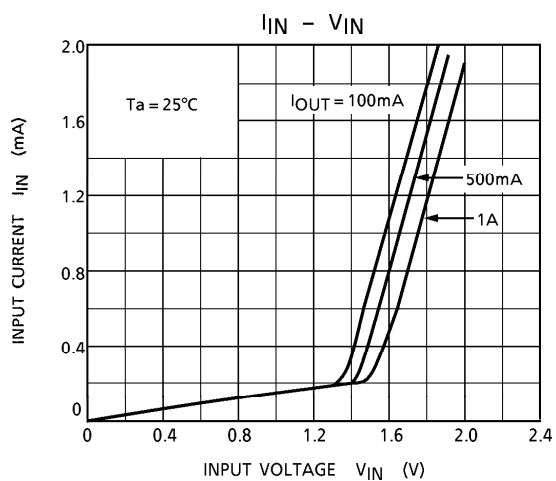
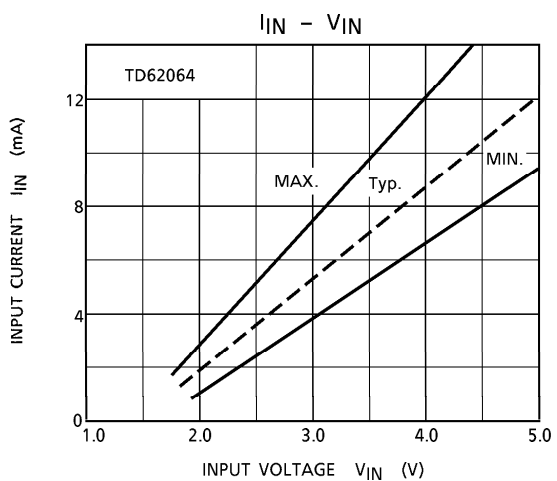
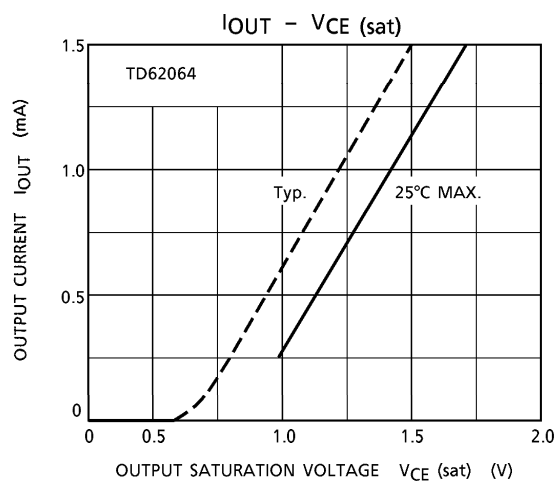
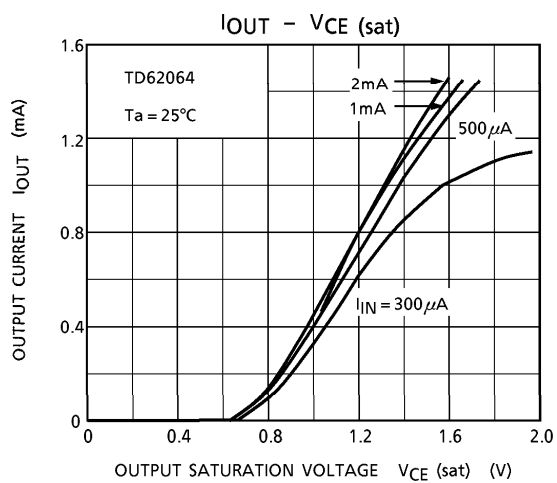
- (Note 1) Pulse Width $50\mu s$, Duty Cycle 10%
Output Impedance 50Ω , $t_r \leq 5ns$, $t_f \leq 10ns$
(Note 2) C_L includes probe and jig capacitance

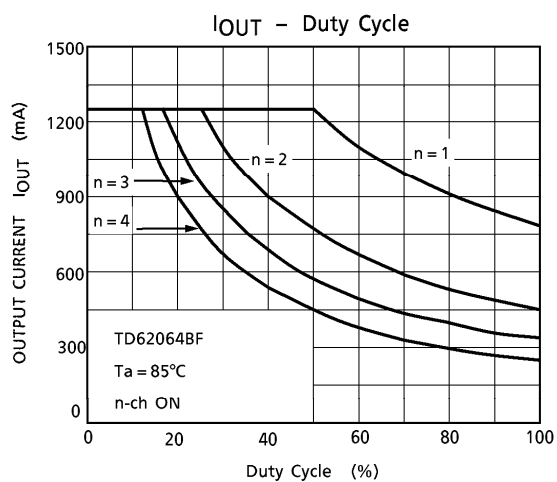
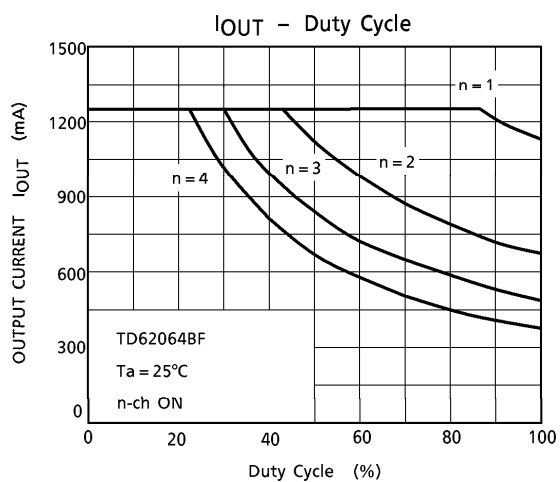
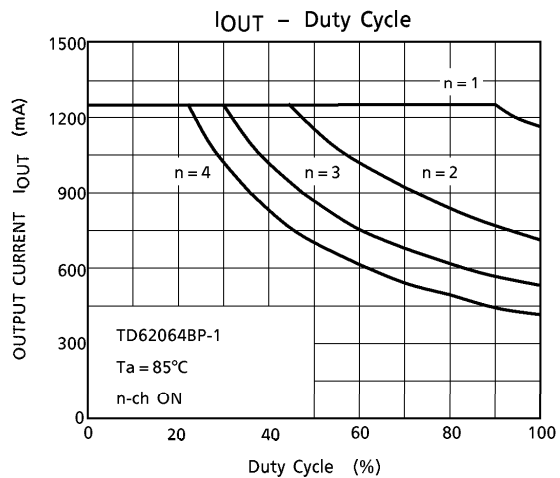
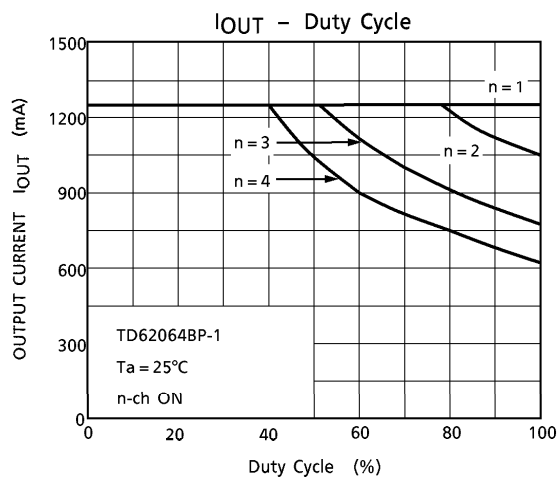
8. V_{cef}



PRECAUTIONS for USING

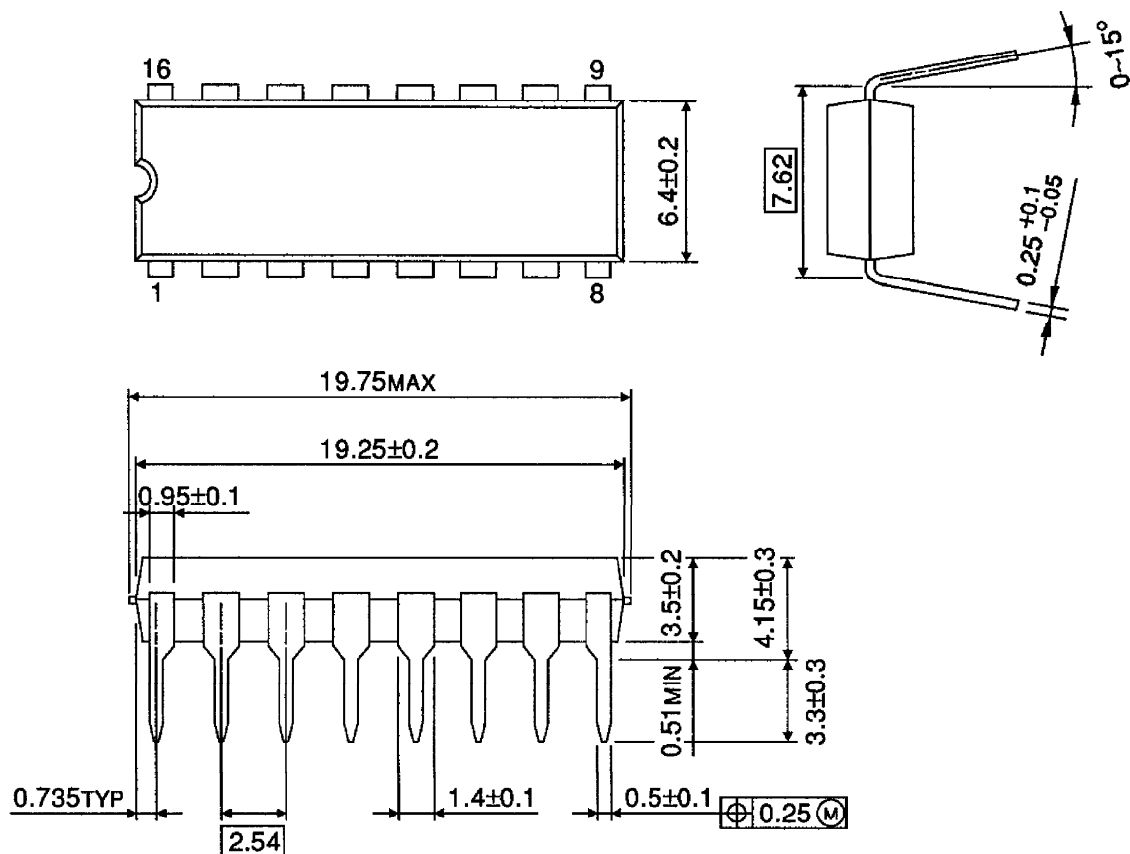
Utmost care is necessary in the design of the output line, COMMON and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.





OUTLINE DRAWING
DIP16-P-300-2.54A

Unit : mm

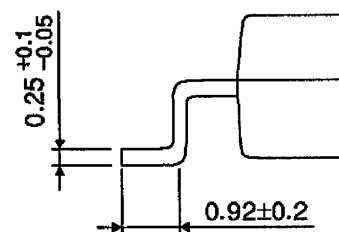
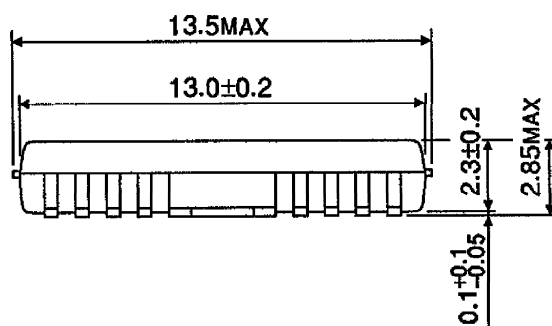
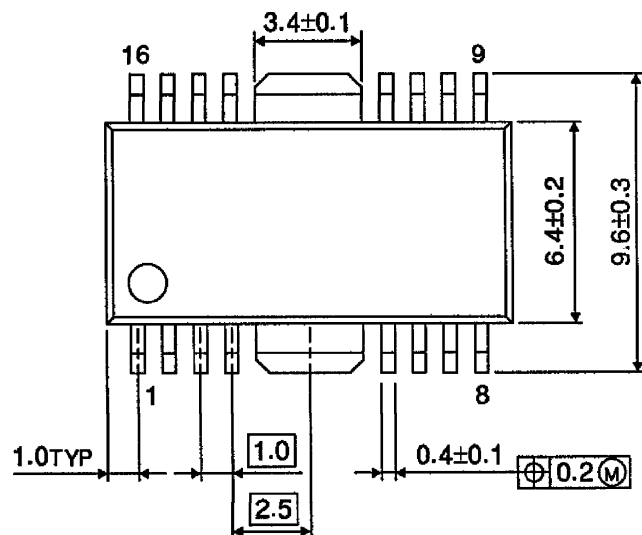


Weight : 1.11g (Typ.)

OUTLINE DRAWING

HSOP16-P-300-1.00

Unit : mm



Weight : 0.50g (Typ.)