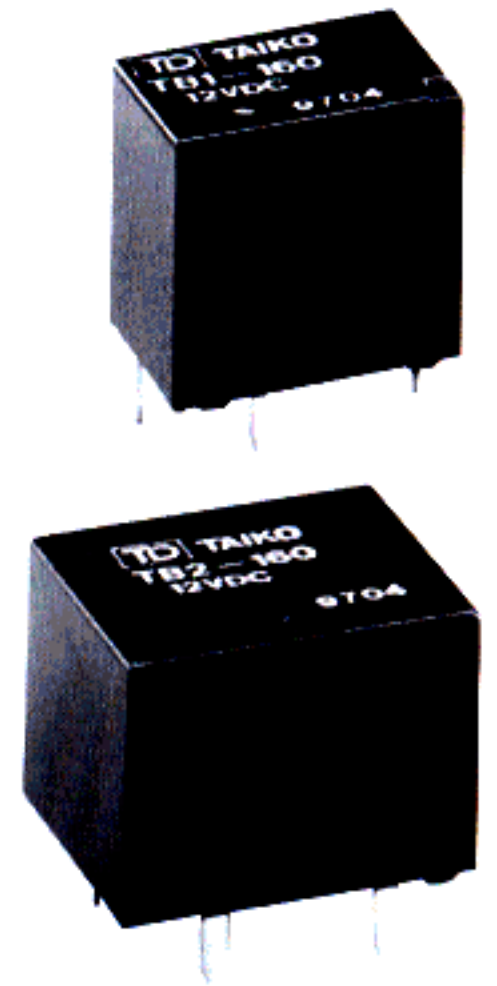


## TB AUTOMOTIVE RELAYS

### 特長 FEATURES

- 小型  
従来リレー (TX1、TX2リレー) に比べ、体積50%、取付面積60%、高さ13.5mmにまで小型化した車載用小容量パワーリレーです。
- 接点構成は、1接点組タイプと、モーター正逆転制御用の2接点組タイプの2種類をそろえています。
- 高容量  
導電部に高導電率材料を使用し、余裕のある導体断面積・放熱設計により、小型でも25Aの通電が可能です。
- 過電流通電時のOFFモード故障を実現しました。

- Small size.  
Compared to the conventional type, miniaturized as 50% in volume, 60% in mounting area, 13.5mm in height.
- 2 kinds of contact arrangements are provided as 1 form C and 2×1 form C for controlling the direction of motor rotation.
- High capacity.  
Employs highly conductive material and sufficient cross area of conductor & heat radiant designing, capable of 25A switching current.
- Over current protection.  
In case of over current, contacts are designed to open automatically during overload conditions.

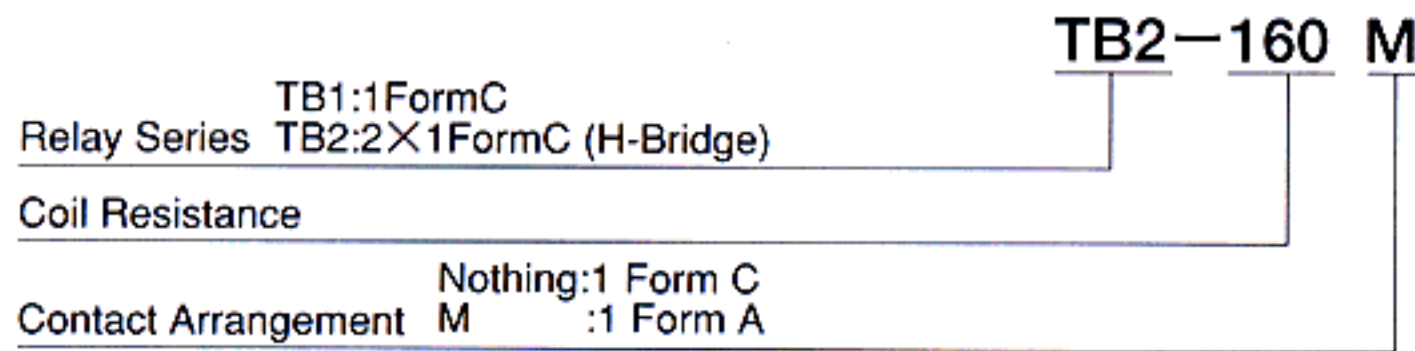


### 用途 APPLICATION

POWER WINDOW, DOOR-LOCK(KEYLESS ENTRY SYSTEM), SEAT CONTROL, SUN ROOF, DOOR MIRROR, for controlling the direction of motor rotation, and FLASHER units.

### 品名・コイル定格 PART NUMBER CODE・COIL RATING

#### PART NUMBER CODE



#### COIL RATING

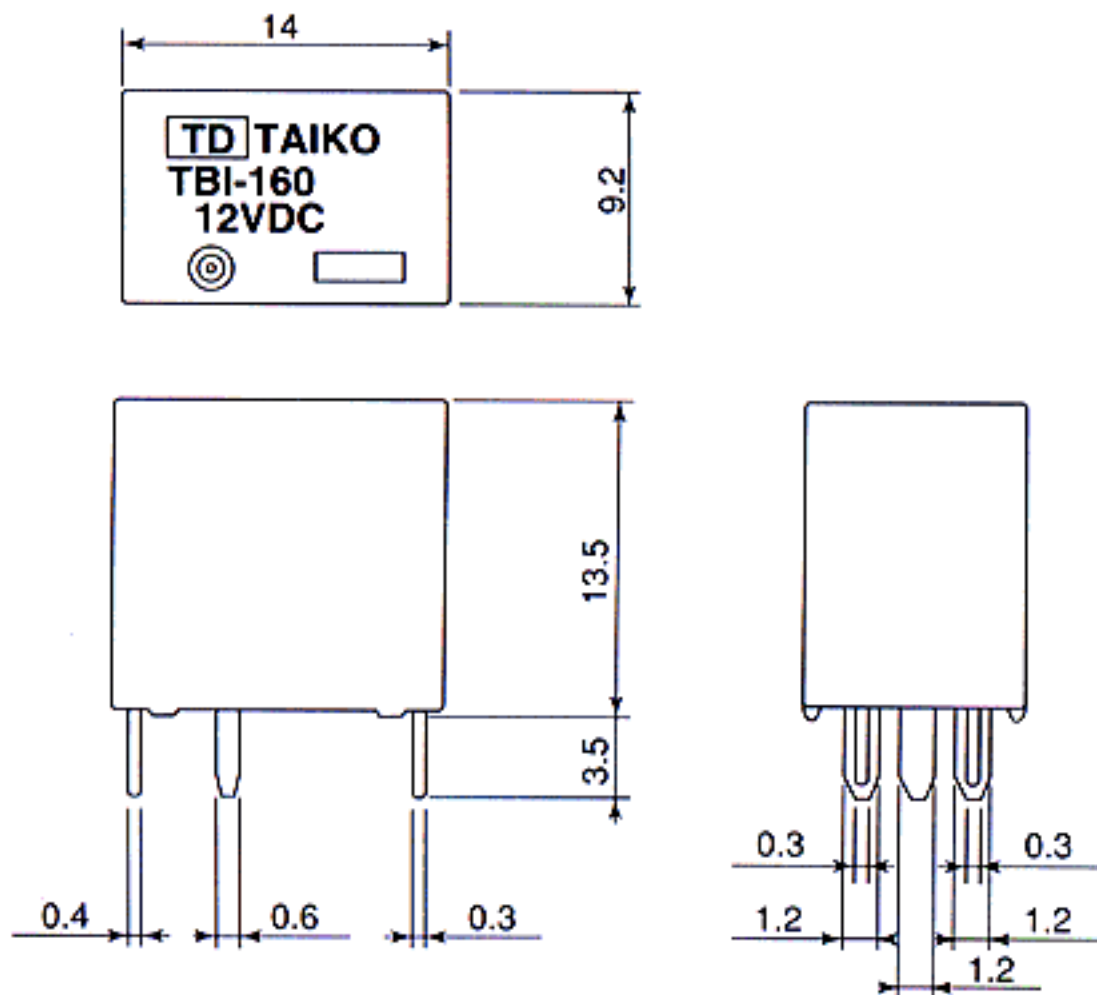
Part No	Rated Voltage	Coil Resistance(±10%)	Pull-in Voltage	Drop-Out Voltage	Rated Power
TB1-160	12VDC	160 Ω	6.5V	0.8V	0.9W
TB1-225	12VDC	225 Ω	7.7V	0.8V	0.64W
TB1-225M	12VDC	225 Ω	6.5V	0.7V	0.64W
TB2-160	12VDC	160 Ω	6.5V	0.8V	0.9W
TB2-225	12VDC	225 Ω	7.7V	0.8V	0.64W

Rated at 20°C Ambient temperature

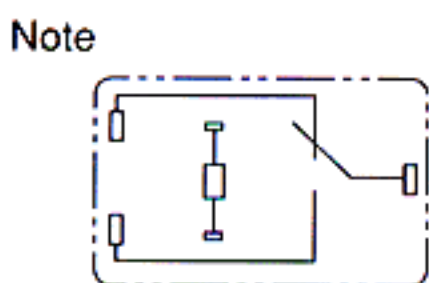
### 寸法図 DIMENSIONS UNIT mm

#### TB1

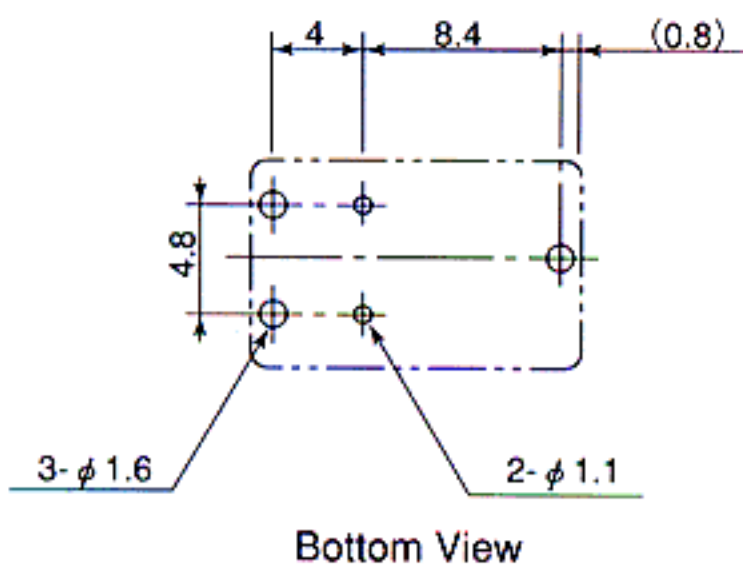
##### ●外形寸法/External Dimensions



##### ●内部配線図/Wiring Diagram



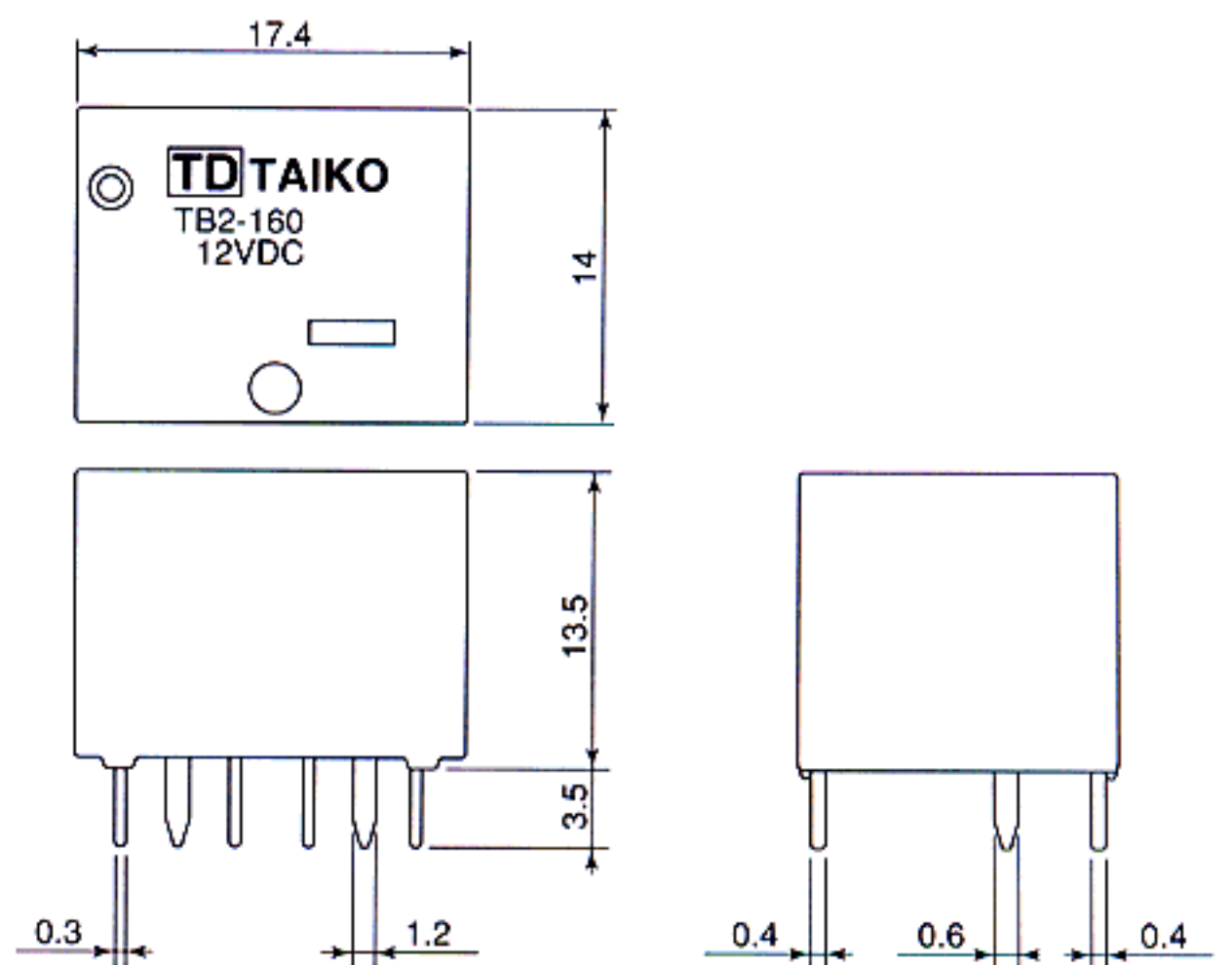
##### ●プリント板穴開け図 (参考図) / PC Board Pin Layout



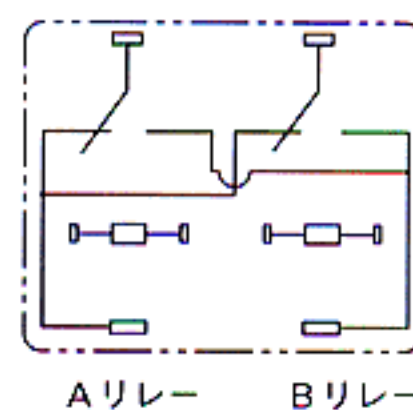
Note:TB1-100MF has no break terminal.

#### TB2

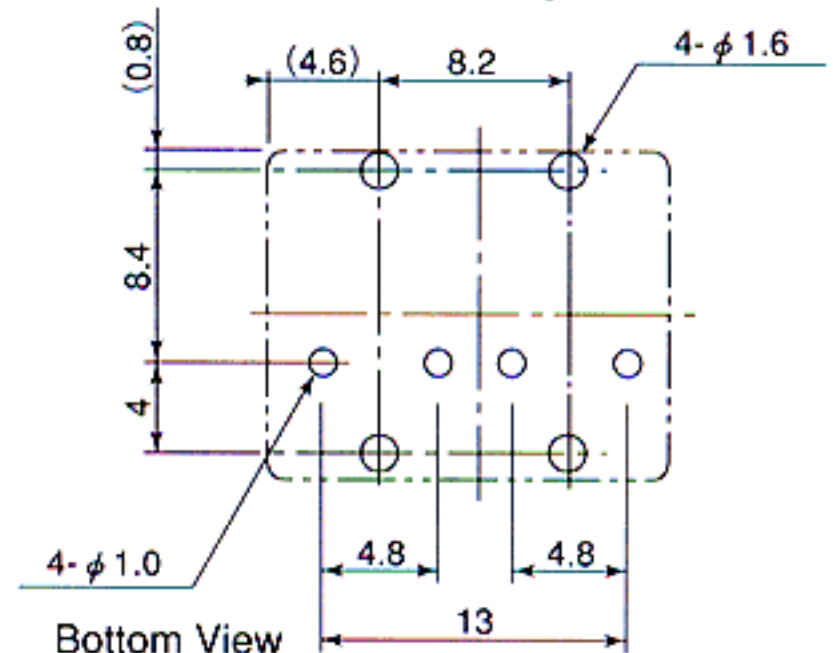
##### ●外形寸法/External Dimensions



##### ●内部配線図/Wiring Diagram



##### ●プリント板穴開け図 (参考図) / PC Board Pin Layout



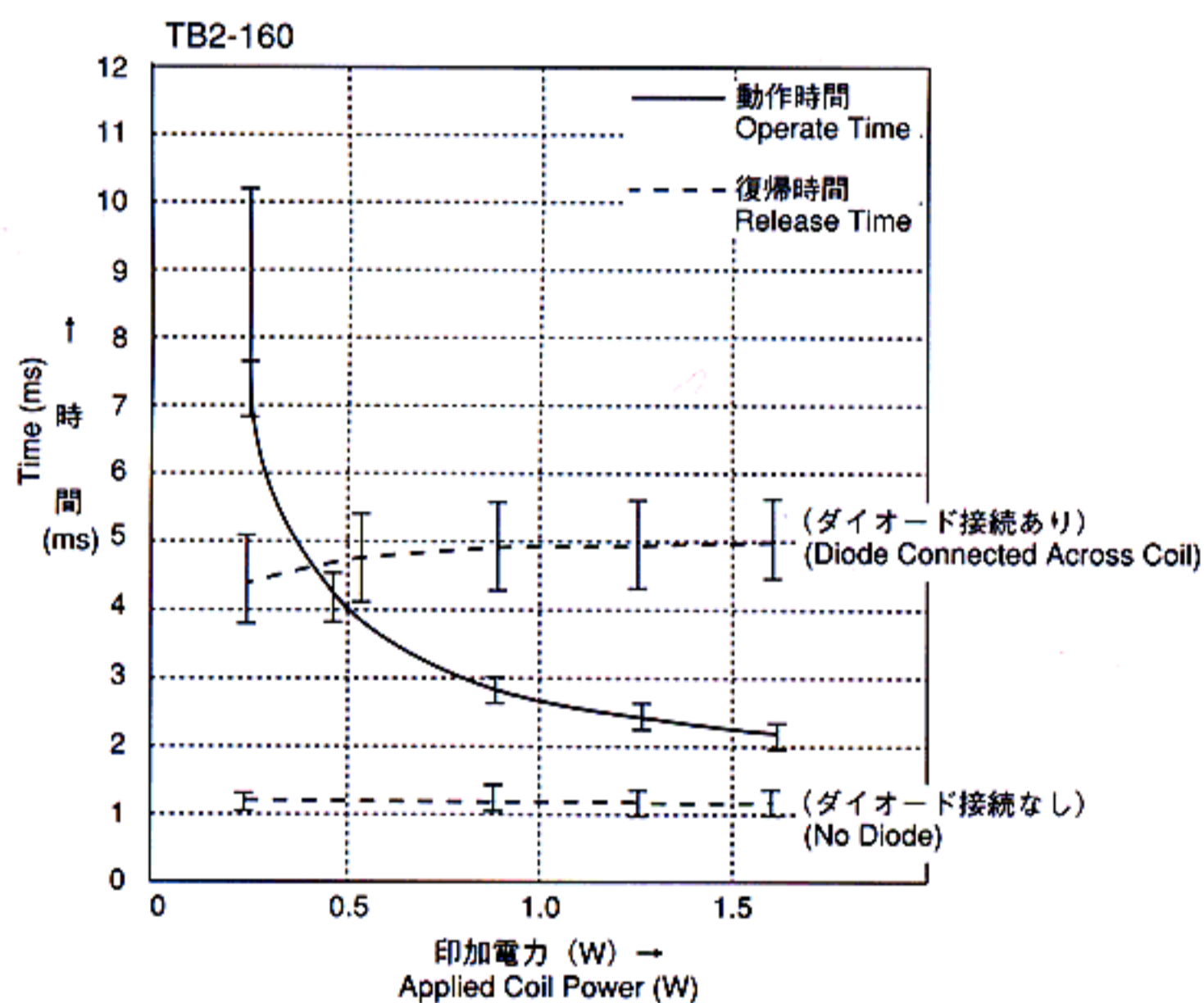
# 性能 SPECIFICATION

項目/ITEM	性能概要/SPECIFICATION	
接点構成/Contact Arrangement	TB1:1FormC (1C) and 1FormA (1a)	TB2:2×1FormC (1C)
接点材質/Contact Material	AgSnO <sub>2</sub>	
定格負荷/Rated Load	14VDC:25A (Motor Load : Locked Rotor)	
接触抵抗/Contact Resistance	Max 50mΩ (at 6VDC 1A voltage drop method)	
最大開閉電流/Max Switching Current	30A	
最大通電電流/Max Carrying Current	25A for 10minutes at 20°C	
耐電圧/Dielectric Strength	500VAC for 1minute (between Coil and Contact) 500VAC for 1minute (between open Contacts)	
絶縁抵抗/Insulation Resistance	Min 100MΩ (at 500VDC)	
動作時間/Operate Time	Max 10ms (at rated voltage)	
復帰時間/Release Time	Max 10ms (at rated voltage)	
衝撃/Shock	誤動作/False Operation	Min 10G (Shock wave 11ms)
	耐久/Endurance	Min 100G (Shock wave 11ms)
振動/Vibration	誤動作/False Operation	10 to 500Hz 4.4G
	耐久/Endurance	10 to 500Hz 4.4G
機械的寿命/Mechanical Life	10×10 <sup>6</sup> Operations (Switching frequency 300 times/minute)	
電氣的寿命/Electrical Life	14VDC 25A Motor Load 0.1×10 <sup>6</sup> Operations (ON:1sec / OFF:9sec)	
使用周囲温度/Ambient Temperature	-40°C to +85°C	
重量/Weight	TB1:Approx 5grms	TB2:Approx 9.5grms

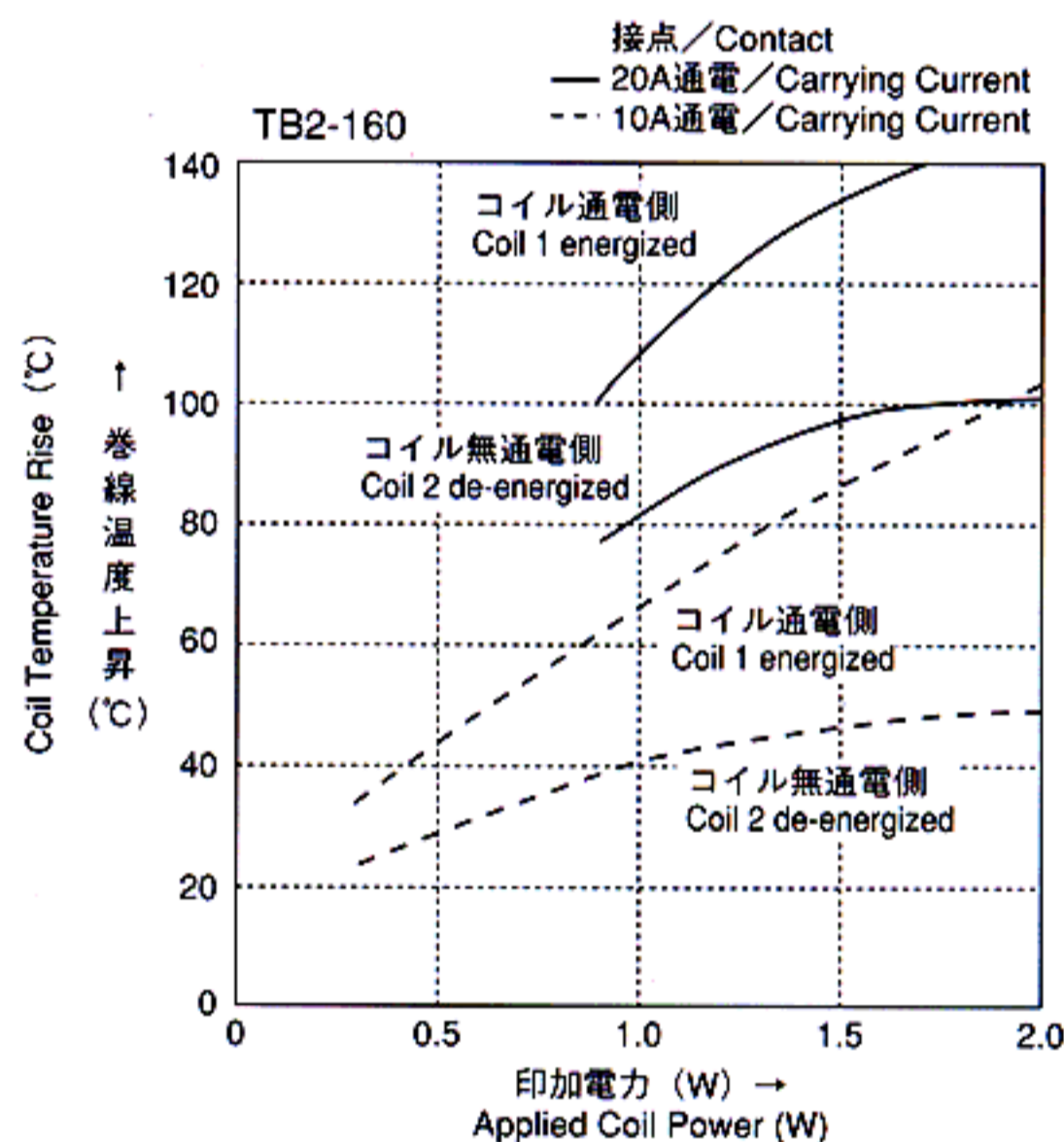
# 特性 CHARACTERISTICS

## ●時間特性/Time Characteristics

コイル印加電力と動作・復帰時間の関係 (DC12V印加)  
Relation between Applied Coil Power & Operate Release Time  
(DC12V Applied to Coil)



## ●巻線温度上昇/Coil Temperature Rise



# FLASHER RELAYS

ITEM	SPECIFICATION				
Part No.	TB1-100MF				
Contact Arrangement	1FormA (1a)				
Contact Material	Fixed contact ; Pd Ru Movable contact ; AgSnO <sub>2</sub>				
Contact Rated Load	23W×3, 14VDC Lamp load				
Maximum Load	23W×5, 14VDC Lamp load				
Electrical Life	500H (2.55×10 <sup>6</sup> Operations) at 14VDC 23W×3 Lamp load, (Switching frequency 85 times/minute)				
Coil Rating at 20°C Ambient Temperature	Rated Voltage	Coil Resistance (±10%)	Pull-in Voltage	Drop-out Voltage	Rated Power
	12VDC	100Ω	6.5V	0.5V	1.44W

Caution:

For the arrangement of relay terminal, fixed terminal must be connected to plus(+) side of power supply.

