

Power Relay PK2 HE Latching (THT – THR)

- High endurance performance up to 125°C
- Minimized coil power consumption
- Limiting continuous current 45A at 85°C
- Maximum switch on current 200A
- High shock and vibration resistance
- No change of switching state at breakdown of battery voltage
- Wave (THT) and reflow (THR/pin-in-paste) solderable versions
- For monostable version refer to Power Relay PK2 HE (THT THR)

Typical applications

Clamp switch (power distribution boxes), quiescient current management.



Contact Data		
Contact arrangement	1 form A, 1 NO	
Rated voltage	12VDC	
Maximum switching voltage	16VDC	
Rated current ¹⁾	60A	
Limiting continuous current ¹⁾		
23°C	60A	
85°C	45A	
105°C	35A	
125°C	20A	

Contact Data (continued)	
Contact material	silver alloy
Min. contact load ²⁾	1A 5VDC
Initial voltage drop at 10A, typ./max.	30/300mV
Operate time	typ. 1.5ms
Release time	typ. 1.5ms
Mechanical endurance	>2x10 ⁶ ops.

Electrical Endurance 12VDC Coil

Load voltage/ coil voltage	Load type			Load current 1 form A NO	On / off ratio	Electrical endurance ³⁾
14VDC	resistive		make	40A	0.12s/4.88s	>1x10 ⁵ ops.
			break	40A	0.125/4.005	>1x10° ops.
	capacitive	N/A	make	200A	0.12s/4.88s	>5x10 ⁴ ops.
			break	20A	0.125/4.005	>0x10+0ps.
	inductive L=0.5mH	L O EmH	make	60A	0.12s/4.88s	>1x10 ⁵ ops.
			break	35A	0.125/4.005	>1x10° ops.

All tests performed with cyclic temperature -40 to 85°C

Measured on 70x70x1.5mm epoxy PCB FR4 with 52cm² (double layer 105µm) copper area. Connected cable cross section 6mm². Boundary conditions: 180°C coil temperature; 130°C solder joint. Solder joint results above 130°C on request. The load circuit shall withstand current applied on 60A MAXI fuse. Tested for 100h according ISO62810-1.
See Definitions for automotive relays https://relays.te.com/definitions/ and chapter Diagnostics of Relays in our Application Notes at https://relays.te.com/appnotes/

Be aware of using right polarity, see terminal assignment. Wrong polarity could reduce endurance. Endurance values according Weibull.

Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section. Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at <u>https://relays.te.com/definitions</u>

Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change. 1



Power Relay PK2 HE Latching (THT - THR) (Continued)

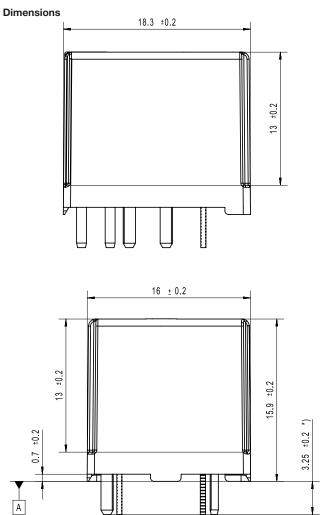
system	bista	bistable (two coil system)				
ge range			00/			
~ ~						
		- 30		-	+	
		pin 1	pin 6	pin 2	pin 6	
ions, bistable	2 coils					
Rated	Set	Reset			Impulse	
voltage	voltage	0		±10%	lenght	
				<u> </u>	[ms]	
					<u>10 – 100</u> -23°C	
	anout pro or	longization, at t			20 0.	
on Data						
ectric strength						
en contact and	COIL		500V	AC _{rms}		
•						
	26		com	pliant		
	50					
age						
068-2-1 (2008	-01)		1000h	; -40°C		
068-2-2 (2008	-05)		1000h;	+125°C		
ange of temper	ature (ther	mal shock),				
068-2-14 (201	0-04)	1000	cucles -	./0°C /±12	25°C	
at cyclic,		1000	cycics,	40 07+12		
068-2-30 (200	6-06)					
			es 25°C	/55°C/93%	6RH	
810 (2015-02)	lai protecti	THT:		RT III BT II		
st						
068-2-17 (199	4-07)	THT: Qc, r THR:)°C	
	,	0	0 +- 440			
	-12)				to >10ue	
	onal) half s		ige of sv	ntoning sta	ate >10µ3	
			1 ms > 1	100g (set p	osition)	
			od 1 br	nt din 5s 2	245°C6)	
lity (aging 3: 4h	/155°C) ⁵⁾		100 1,110	2 dip 00, 2		
		Ta, meth				
0						
0						
	1-01)					
		400			-	
21 -		ap		,)	
g unit ⁸⁾			600	DCS.		
age according to C contact may re tween driving imp	ISO 16750-2 close, but w ulses at cyc	2 functional sta ill not remain c lic energizing a	atus C. In Iosed (no at TAmb=8	case of a res latching func 35°C must be	et latch puls ction). The e at least	
ed process (Tm = s on the alloy com	,			217°C).		
	pe range set - reset) ⁴⁾ voltage r set/reset ation ions, bistable Rated voltage [VDC] 12 re given for coil wi on Data extric strength n open contact and contact and vata VELV compliance emperature age D68-2-1 (2008 D68-2-2 (2008 loge-2-2 (2008 loge-2-14 (2011 at cyclic, D68-2-2 (2008 loge-2-2 (2008 loge-2-2 (2007) loge-2-30 (2007) listance (function D68-2-2 (2007) listance (function D68-2-17 (199- resistance (function D68-2-20 (2007) listance (function	ge range set - reset) ⁴⁾ voltage r set/reset ation ions, bistable 2 coils Rated Set voltage voltage [VDC] [VDC] 12 6.9 re given for coil without pre-er on Data actric strength en open contacts en contact and coil Pata //ELV compliance emperature age D68-2-1 (2008-01) D68-2-2 (2008-05) inge of temperature (ther D68-2-14 (2010-04) at cyclic, D68-2-30 (2006-06) iant 1 of environmental protecti 810 (2015-02) st D68-2-17 (1994-07) resistance (functional) D68-2-2 (2008-01) IO contact will not close NO	ge range set - reset) ⁴⁾ I voltage r set/reset se ation - pin 1 ions, bistable 2 coils Rated Set Reset voltage voltage voltage [VDC] [VDC] [VDC] 12 6.9 6.9 re given for coil without pre-energization, at a on Data actric strength en open contacts en contact and coil Pata //ELV compliance emperature age D68-2-1 (2008-01) D68-2-2 (2008-05) ange of temperature (thermal shock), D68-2-14 (2010-04) 1000 at cyclic, D68-2-30 (2006-06) iant 1 6 cycl of environmental protection B10 (2015-02) THT: St D68-2-17 (1994-07) THT: Qc, r THR: resistance (functional) D68-2-27 (2008-01) IO contact will not close >10 µs f NO contact will not close >10 µs	ge range ge / 12 set - reset) ^{4/1} 28/11 voltage 12/1 r set/reset set ation - pin 1 pin 6 ions, bistable 2 coils Rated Set Rated Set voltage voltage fe given for coil without pre-energization, at ambient te on Data 500V ctric strength 500V en contact and coil 500V en contact and coil 500V afge 2600-01 268-2-1 (2008-05) 1000h; 268-2-2 (2008-05) 1000h; 268-2-2 (2008-05) 1000h; 268-2-2 (2008-05) 1000h; 268-2-14 (2010-04) 1000 cycles, -	ge range $28/18$ VDC ivoltage 12 VDC ivoltage 12 VDC r set/reset set ation - pin 1 pin 6 pin 2 ions, bistable 2 coils Rated Set Rated Set voltage voltage voltage voltage voltage voltage coil resistance $\pm 10\%$ (VDC) [VDC] [VDC] [VDC] (VDC) [VDC] (ELV compliance compliant	

b) Distable relaxing and earlies of here known but to the office rained impacts while transportation, we advise to check the contact status after the incoming. Before entering the product into the reflow soldering process, please make sure that the relay is unlatched, in order to maintain its performance.

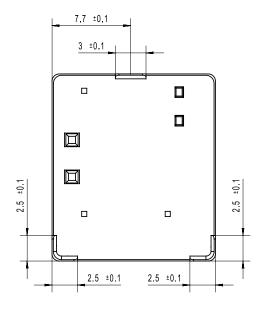
11-2020, Rev. 1120 www.te.com © 2020 TE Connectivity.

2

Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.



*) Additional tin tops max. 1mm



Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at https://relays.te.com/definitions

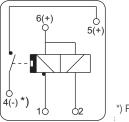
Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change.



Power Relay PK2 HE Latching (THT – THR) (Continued)

Terminal Assignment

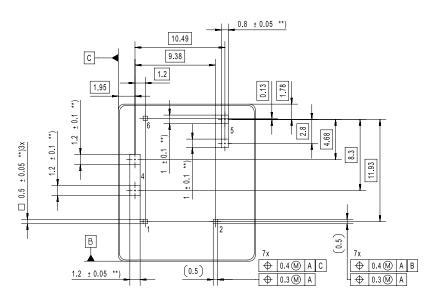
Bottom view on solder pins 1 form A, 1 NO



*) Polarity as stated is compulsory

PCB Layout

Bottom view on solder pins



Remark: Positional tolerances according to DIN EN ISO 5458 **) without tinning (hot dip)

Prod	uct Co	ode Structure	Typical product code	V23201	-L	1	004	-A	5	12
Туре				1						
	PK2	Power Relay PK2 Latching (THT - THI	3)							
Termi	nal and	enclosure								
	L	Latching (sealed) T	Latching (vented)							
Desig	n									
	1	Single relay								
Coil										
	004	12VDC (THT – THR)								
Conta	ct type	•								
	Α	Single contact								
Conta	ct mat	erial								
	5	Silver alloy								
Contact arrangement										
	12	1 form A, 1 NO								

Product Code	Version	Design	Coil	Arrangement	Part Number
V23201-L1004-A512	PCB, sealed (THT)	Single relay	Latching, 12VDC (THT)	1 form A, 1 NO	7-1904118-1
V23201-T1004-A512	PCB, vented (THR)		Latching, 12VDC (THR)		7-1904118-4
Other twees an requirest		·			

Other types on request.

11-2020, Rev. 1120 <u>www.te.com</u> © 2020 TE Connectivity. Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section. Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at <u>https://relays.te.com/definitions</u>

Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change. 3