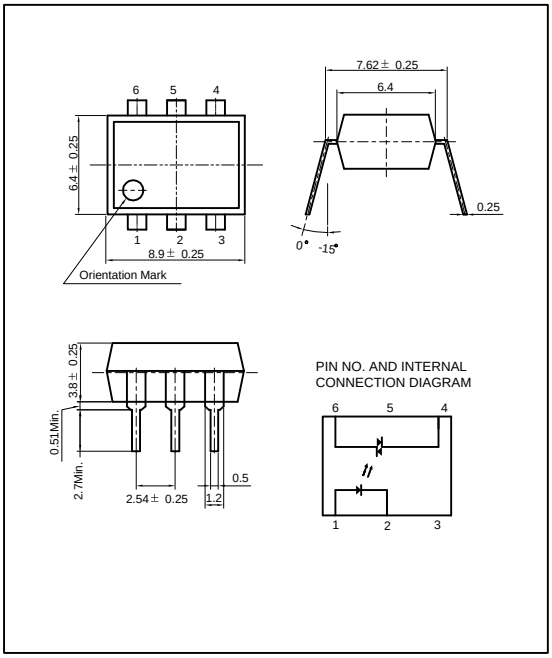
Photocoupler

KPC3020 • KPC3021 • KPC3022 • KPC3023

These Photocouplers cosist of a Gallium Arsenide Infrared Emitting Diode and a Silicon NPNPN Phototriac in a 6-pin package.

DIMENSION (Unit : mm)



FEATURES

- Peak Off-state Voltage : Min.400V
- On-state Current : Max. 100mA
- Electrical Isolation Voltage : AC5000V_{rms}
- Trigger LED Current
- UL Recognized File No. E107486

APPLICATIONS

- Office Machine
- Household Use Equipment
- Triac Driver
- Solid State Relay

MAXIMUM RATINGS

(Ta=25℃)

Parameter			Symbol	Rating	Unit
Input	Forward Current		I_F	50	mA
	Reverse Voltage		V_R	5	V
	Peak Forward Current *1		I_{FP}	1	A
	Power Dissipation		P_D	100	mW
Output	Peak Off-state Voltage		V_{DRM}	400	V
	On-state RMS Current	Ta=25℃	$I_{T(rms)}$	100	mA
		Ta=70℃		50	
	Peak Nonrepetitive Surge Current *2		I_{surge}	1.2	A
	Power Dissipation		P_D	150	mW
Input to Output Isolation Voltage *3			V_{iso}	AC5000	V_{rms}
Storage Temperature			T_{stg}	-55~+100	℃
Operating Temperature			T_{opr}	-40~+100	℃
Lead Soldering Temperature *3			T_{sol}	260	℃
Total Power Dissipation			P_{tot}	330	mW

*1. Input current with 100μs pulse width, 1% duty cycle

*2. 100μs pulse, 120 pps

*3. Measured at RH=40~60% for 1min

*4. 1/16 inch form case for 10sec

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ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25℃ , unless otherwise noted)

Parameter			Symbol	Condition	Min.	Typ.	Max.	Unit.
Input	Forward Voltage		V_F	I_F=10mA	-	1.15	1.30	V
	Reverse Current		I_R	V_R=5V	-	-	10	mA
	Capacitance		C_T	V=0, f=1MHz	-	30	-	pF
Output	Peak Off-state Current		I_{DRM}	V_{DRM}=400V	-	10	100	nA
	Peak On-state Voltage		V_{TM}	I_T=100mA	-	1.4	3	V
	Holding Current		I_H		-	100	-	μA
	Critical Rate Of Rese Off-state Voltage *5		dV /dt		-	100	-	V/μs
Coupled	Trigger LED Current	KPC3020	I_{FT}	V_T=3V		15	30	mA
		KPC3021			-	8	15.0	
		KPC3022				5	10.0	
		KPC3023				3	5.0	
	Input-Output Capacitance		C_{IO}	V=0, f=1MHz	-	0.6	-	pF
	Input-Output Isolation Resistance		R_{IO}	RH=40~60%, V=500V	-	10^{11}	-	Ω

*5. Input Voltage=0, the frequency of Vin is increased until the Phototriac just turns on.

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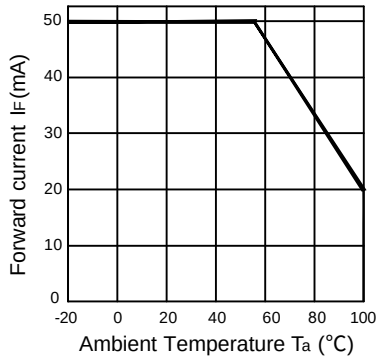
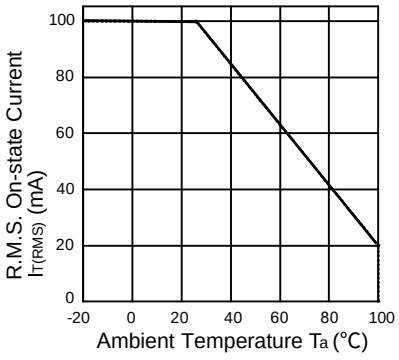
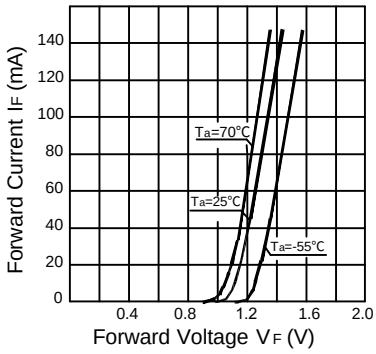
Forward Current vs. Ambient Temperature



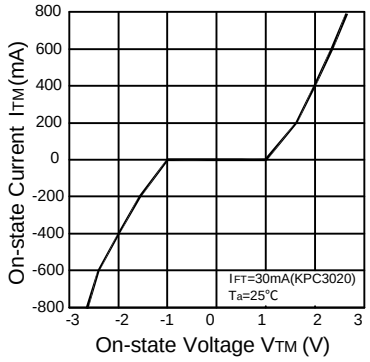
R.M.S. On-state Current vs. Ambient Temperature



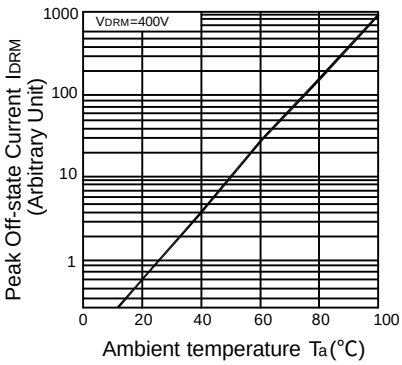
Forward Current vs. Forward Voltage



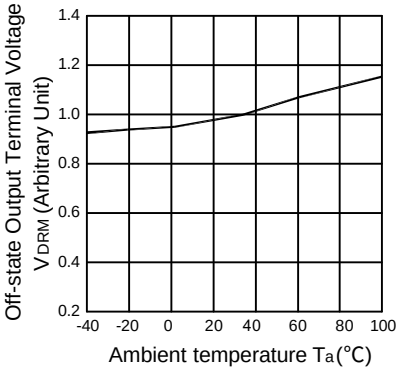
On-state Current vs. On-state Voltage



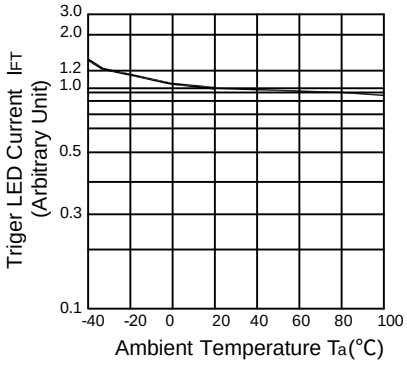
Peak Off-state Current vs. Ambient Temperature



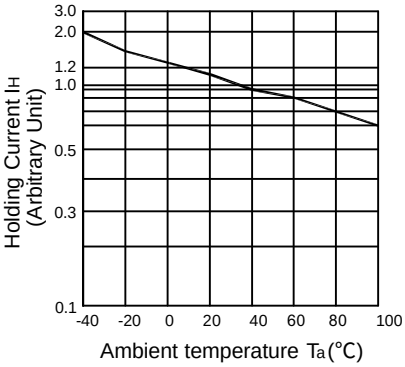
Peak Off-state Voltage vs. Ambient Temperature



Trigger LED Current vs. Ambient Temperature



Holding Current vs. Ambient Temperature



Normalized LED Current vs. LED Current Pulse Width