

TOSHIBA PHOTOCOUPLED & IRED & PHOTO-TRIAC

T L P 6 6 8 J

OFFICE MACHINE.

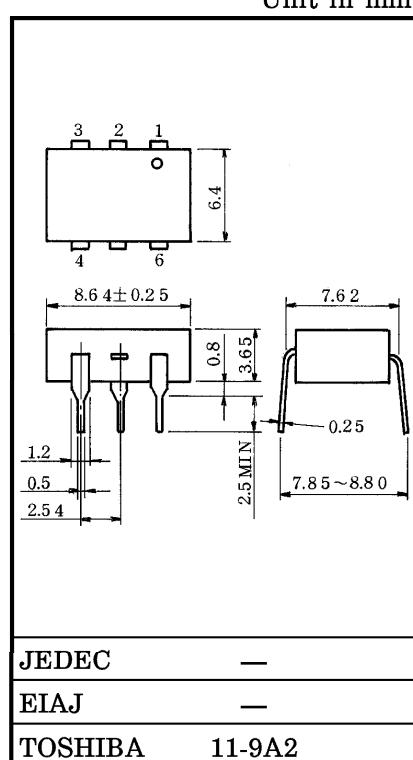
HOUSEHOLD USE EQUIPMENT.

TRIAC DRIVER.

SOLID STATE RELAY.

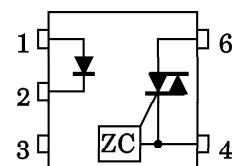
The TOSHIBA TLP668J consists of a zero voltage crossing turn-on photo-triac optically coupled to a GaAlAs infrared emitting diode in a six lead plastic DIP package.

- Peak Off-State Voltage : 600V (Min.)
- Trigger LED Current : 3mA (Max.)
- On-State Current : 100mA (Max.)
- Isolation Voltage : 5000Vrms (Min.)
- UL Recognized : UL1577, File No. E67349



Weight : 0.44g

PIN CONFIGURATIONS (TOP VIEW)



- 1: ANODE
- 2: CATHODE
- 3: NC
- 4: TERMINAL 1
- 6: TERMINAL 2

(Z, C, : Zero-cross Circuit)

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT | |
|---|--|----------------------|-----------------|---------|------|
| LED | Forward Current | I _F | 30 | mA | |
| | Forward Current Derating (Ta = 25°C) | ΔI _F / °C | -0.3 | mA / °C | |
| | Peak Forward Current (100μs pulse, 100pps) | I _{FP} | 1 | A | |
| | Reverse Voltage | V _R | 5 | V | |
| | Junction Temperature | T _j | 125 | °C | |
| Detector | Off-State Output Terminal Voltage | V _{DRM} | 600 | V | |
| | On-State RMS Current | I _T (RMS) | 100 | mA | |
| | | | 50 | | |
| | On-State Current Derating (Ta = 25°C) | ΔI _T / °C | -1.1 | mA / °C | |
| | Peak On-State Current (100μs pulse, 120pps) | I _{TP} | 2 | A | |
| | Peak Nonrepetitive Surge Current (P _W = 10ms, DC = 10%) | I _{TSM} | 1.2 | A | |
| | Junction Temperature | T _j | 110 | °C | |
| | Storage Temperature Range | T _{stg} | -55~150 | °C | |
| | Operating Temperature Range | T _{opr} | -40~100 | °C | |
| | Lead Soldering Temperature (10sec.) | T _{sold} | 260 | °C | |
| Isolation Voltage (AC, 1 min., R. H. 60%) | | (Note 1) | BV _S | 5000 | Vrms |

Note 1: Device considered a two terminal device: Pins 1, 2 and 3 shorted together and pins 4 and 6 shorted together.

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

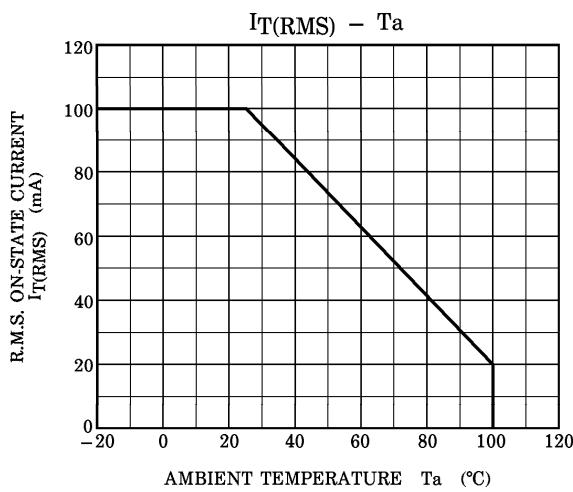
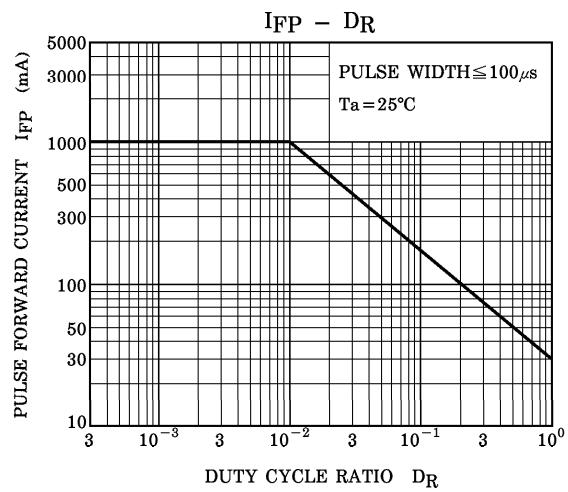
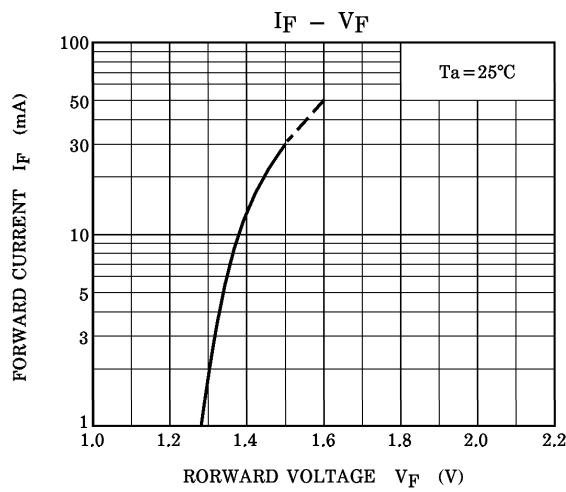
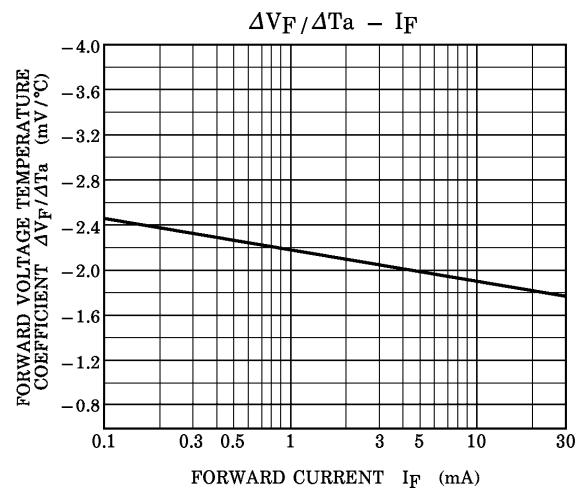
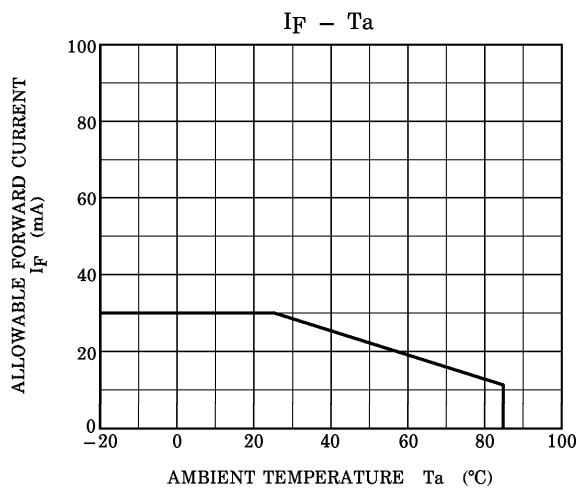
| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------|--|------------------|---|------|------|------|--------|
| LED | Forward Voltage | V _F | I _F =10mA | 1.2 | 1.4 | 1.7 | V |
| | Reverse Current | I _R | V _R =3V | — | — | 10 | μA |
| | Capacitance | C _T | V=0, f=1MHz | — | 30 | — | pF |
| Detector | Peak Off-State Current | I _{DRM} | V _{DRM} =600V | — | 10 | 1000 | nA |
| | Peak On-State Voltage | V _{TM} | I _{TM} =100mA | — | — | 3.0 | V |
| | Holding Current | I _H | — | — | 0.2 | — | mA |
| | Critical Rate of Rise of Off-State Voltage | dv / dt | V _{in} =240Vrms Ta=85°C | — | 500 | — | V / μs |
| | Critical Rate of Rise of Commutating Voltage | dv / dt (c) | V _{in} =60Vrms I _T =15mA rms | — | 0.2 | — | V / μs |

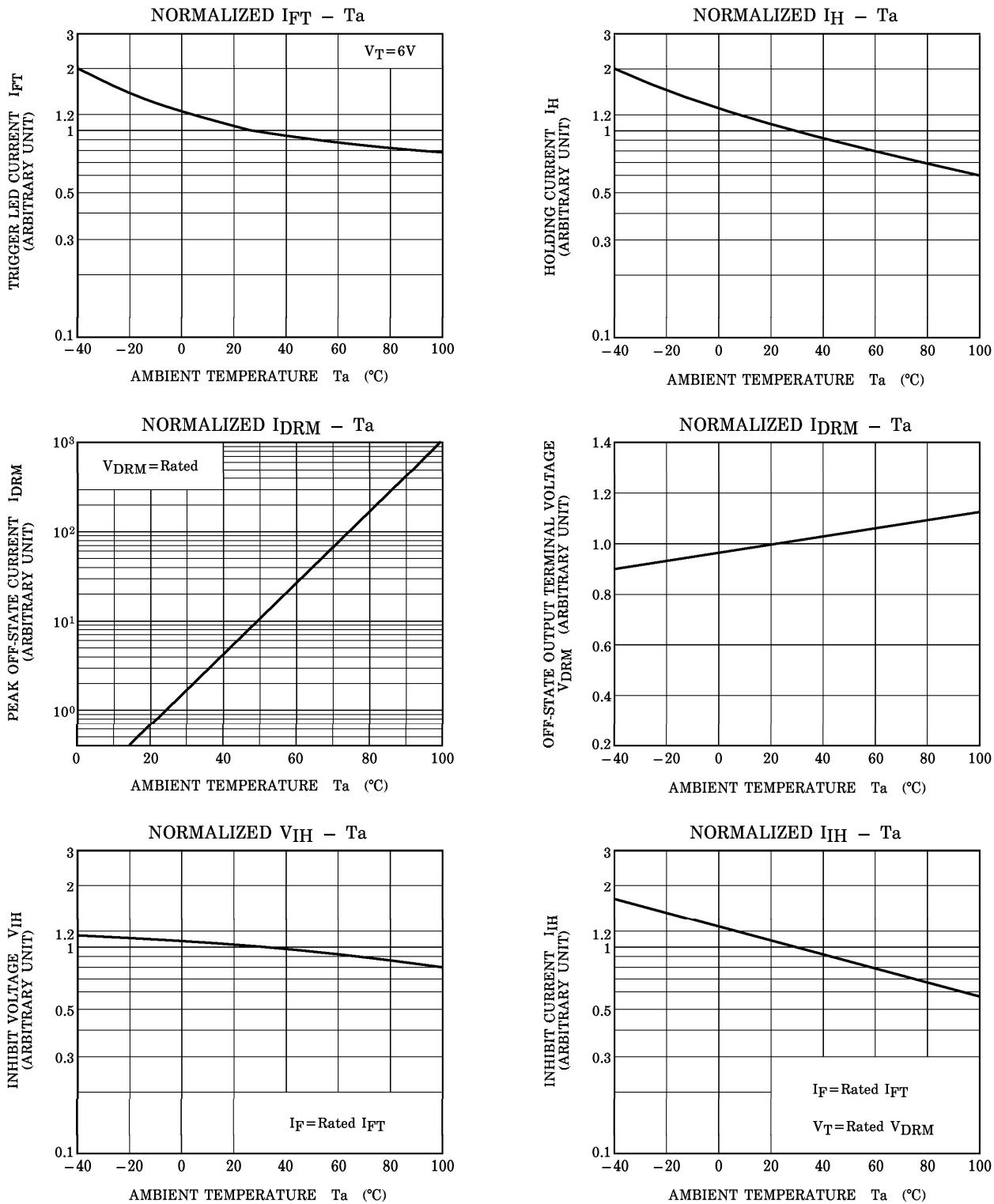
COUPLED ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-----------------------------|----------|---|--------------------|-----------|------|---------------|
| Trigger LED Current | I_{FT} | $V_T = 6\text{V}$, Resistive Load | — | — | 3 | mA |
| Inhibit Voltage | V_{IH} | $I_F = \text{Rated } I_{FT}$ | — | — | 50 | V |
| Leakage in Inhibited State | I_{IH} | $I_F = \text{Rated } I_{FT}$ $V_T = \text{Rated } V_{DRM}$ | — | — | 600 | μA |
| Capacitance Input to Output | C_S | $V_S = 0$, $f = 1\text{MHz}$ | — | 0.8 | — | pF |
| Isolation Resistance | R_S | $V_S = 500\text{V}$, R. H. $\leq 60\%$ | 5×10^{10} | 10^{14} | — | Ω |
| Isolation Voltage | B_{VS} | AC, 1 minute | 5000 | — | — | Vrms |
| | | AC, 1 second (in oil) | — | 10000 | — | |
| | | DC, 1 minute (in oil) | — | 10000 | — | Vdc |

RECOMMENDED OPERATING CONDITIONS

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|-----------------------|-----------|------|------|------|------------------|
| Supply Voltage | V_{AC} | — | — | 240 | Vac |
| Forward Current | I_F | 4.5 | 6 | 7.5 | mA |
| Peak On-State Current | I_{TP} | — | — | 1 | A |
| Operating Temperature | T_{opr} | -10 | — | 85 | $^\circ\text{C}$ |





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