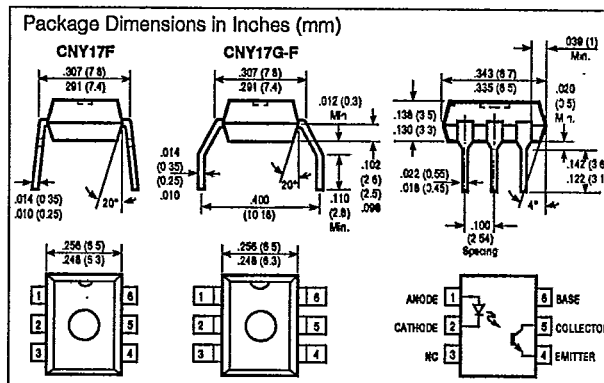
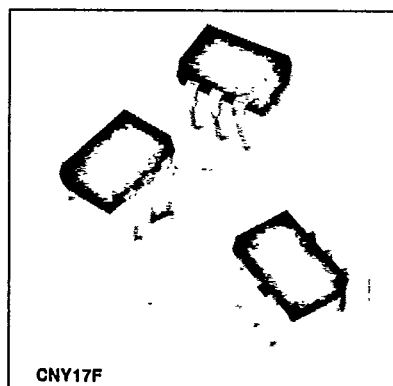


SIEMENS*T-41-83***CNY17F SERIES****VDE LEAD BEND CNY17G F SERIES****SINGLE CHANNEL****PHOTOTRANSISTOR OPTOCOUPLER****NO BASE CONNECTION****FEATURES**

- **CNY17F G Lead Bend in Accordance with VDE 0805/0806**
- **5300 Volt Breakdown Voltage**
- **Base Terminal not connected for Improved Common Mode Interface Immunity**
- **High Current Transfer Ratio, 3 Groups**
CNY17F/G F-1, 40 to 80%
CNY17F/G F-2, 63 to 125%
CNY17F/G F-3, 100 to 200%
- **Low CTR Degradation**
- **High Collector-emitter Voltage $V_{CE0} = 70V$**
- **100% Burn-in**
- **VDE Approval #0883**
- **VDE Approval #0884 (Optional with Option 1, add -X001 suffix)**

DESCRIPTION

The CNY17F/G F is an optocoupler that employs a GaAs infrared emitting diode optically coupled to a silicon planar phototransistor detector. The component is incorporated in a plastic plug-in DIP-6 package.

The coupling device is suitable for signal transmission between two electrically separated circuits. The potential difference between the circuits to be coupled is not allowed to exceed the maximum permissible reference voltages.

In contrast to the CNY17 Series, the base terminal of the F/G.F type is not connected. This results in a substantially improved common-mode interference immunity.

Maximum Ratings:

Emitter (GaAs infrared emitter)

Reverse voltage
DC forward current
Surge forward current ($t \leq 10 \mu s$)
Total power dissipation

V_R	6	V
I_F	60	mA
I_{FSM}	2.5	A
P_{TCL}	100	mW

Detector (silicon phototransistor)

Collector-emitter reverse voltage
Collector current
Collector current ($t \leq 1 ms$)
Total power dissipation

V_{CE0}	70	V
I_C	50	mA
I_{CEM}	100	mA
P_{TCL}	150	mW

Optocoupler

Storage temperature range
Ambient temperature range
Junction temperature
Soldering temperature (max. 10s)¹⁾
Isolation test voltage²⁾

T_{stg}	-40 ... +150	°C
T_{amb}	-40 ... +100	°C
T_j	100	°C
T_s	260	°C

between emitter and detector referred to standard climate 23/50 DIN 50014

Leakage path

V_{IO}	5300	Vdc
	>8.0	mm

Air Path

CNY17F
CNY17G-F

	>7.3	mm
	>8.0	mm

Tracking resistance

in acc. with VDE 0110 § 6, table 3
and DIN 53480/VDE 0303, part 1.

KB	≥ 100	(group 3)
R_{IO}	10^{11}	Q

Isolation resistance ($V_{IO} = 500 V$)**Characteristics ($T_{amb} = 25^\circ C$)**

Emitter (GaAs infrared emitter)

Forward voltage ($I_F = 60 mA$)
Breakdown voltage ($I_R = 10 \mu A$)
Reverse current ($V_R = 6 V$)
Capacitance ($V_R = 0 V$; $f = 1 MHz$)
Thermal resistance¹⁾

V_F	1.25 (≤ 1.65)	V
BV	30 (≥ 6)	V
I_R	0.01 (≤ 10)	μA
C_0	40	pF
R_{thJA}	750	K/W

Detector (silicon phototransistor)

Capacitance ($V_{CE} = 5 V$; $f = 1 MHz$)
Thermal resistance¹⁾

C_{CE}	6.8	pF
R_{thJA}	500	K/W

Optocoupler

Collector-emitter saturation voltage
($I_F = 10 mA$; $I_C = 2.5 mA$)
Coupling capacitance

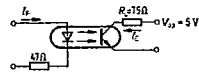
V_{CEsat}	0.25 (≤ 0.4)	V
C_K	0.5	pF

The optocouplers are grouped according to their current transfer ratio I_C/I_F at $V_{CE} = 5$ V, and marked by Arabic numerals.

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Group	-1	-2	-3	
I_C/I_F ($I_F = 10$ mA)	40 ... 80	63 ... 125	100 ... 200	%
I_C/I_F ($I_F = 1$ mA)	30 (> 13)	45 (> 22)	70 (> 34)	%
Collector-emitter leakage current ($V_{CE} = 10$ V)	I_{CE0} 2 (≤ 50)	2 (≤ 50)	5 (≤ 100)	nA

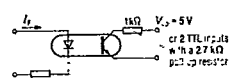
Linear operation (without saturation)



Load resistance	R_L	75	Ω
Turn-on time	t_{on}	3.0 (≤ 6.0)	μs
Rise time	t_r	2.0 (≤ 4.0)	μs
Turn-off time	t_{off}	2.3 (≤ 4.1)	μs
Fall time	t_f	2.0 (≤ 3.5)	μs
Cut-off frequency	f_c	250	kHz

$I_F = 10$ mA
 $V_{CE} = 5$ V
 $T_{amb} = 25^\circ C$

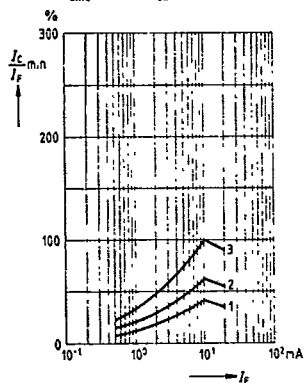
Switching operation (with saturation)



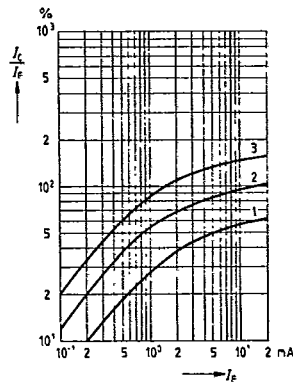
TTL lines are
 connected to
 TTL
 switching times

Group	1 $I_F = 20$ mA	2 and 3 $I_F = 10$ mA	
Turn-on time	t_{on} 3.0 (≤ 5.5)	4.2 (≤ 8.0)	μs
Rise time	t_r 2.0 (≤ 4.0)	3.0 (≤ 6.0)	μs
Turn-off time	t_{off} 18 (≤ 34)	23 (≤ 39)	μs
Fall time	t_f 11 (≤ 20)	14 (≤ 24)	μs
$V_{CE(sat)}$	0.25 (≤ 0.4)		V

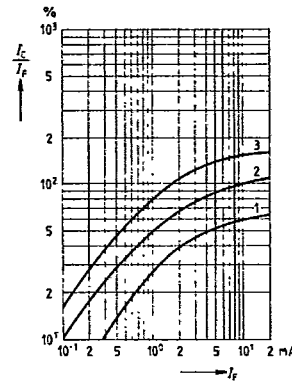
Minimum current transfer ratio
 versus diode forward current
 $T_{amb} = 25^\circ C$, $V_{CE} = 5$ V



Current transfer ratio (typ.)
 versus diode forward current
 $T_{amb} = -25^\circ C$, $V_{CE} = 5$ V



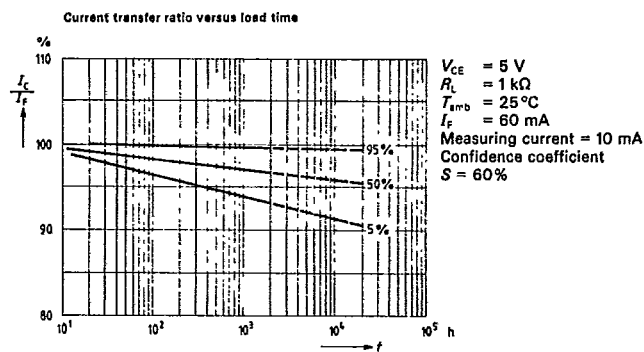
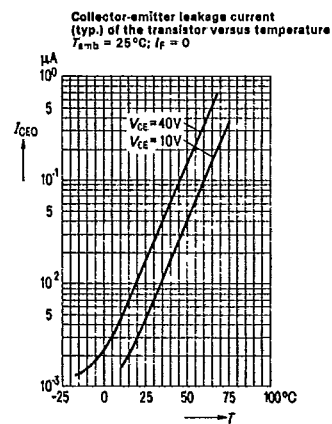
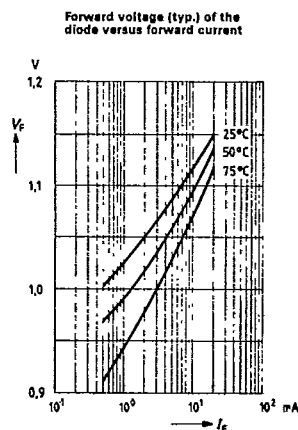
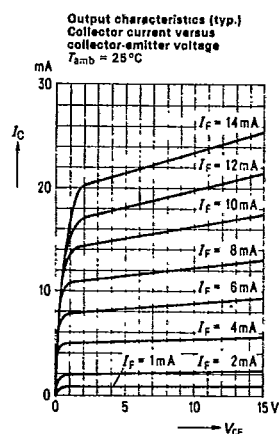
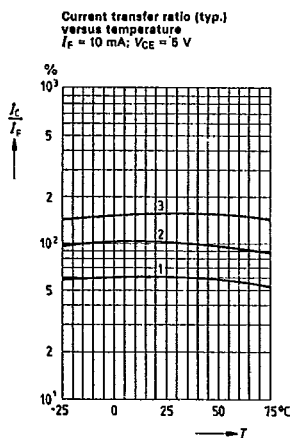
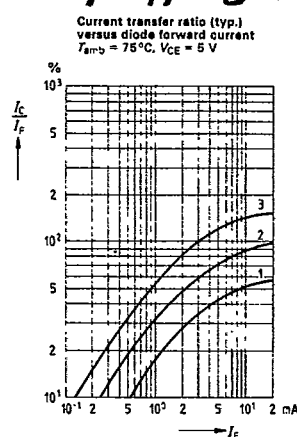
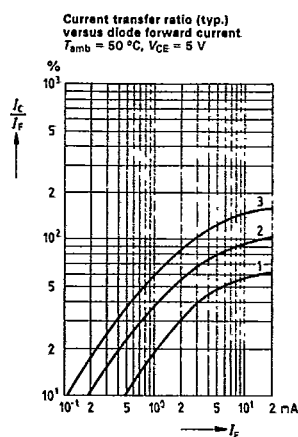
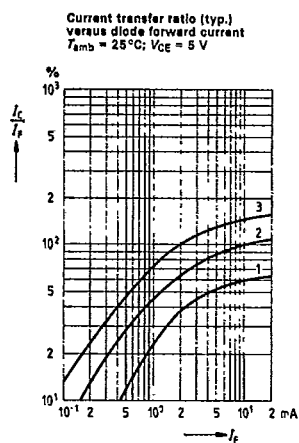
Current transfer ratio (typ.)
 versus diode forward current
 $T_{amb} = 0^\circ C$, $V_{CE} = 5$ V



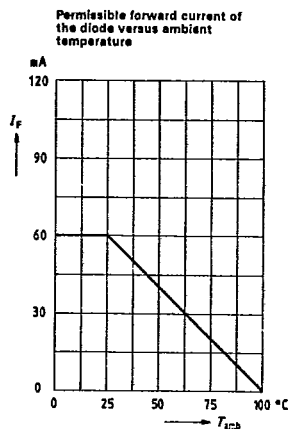
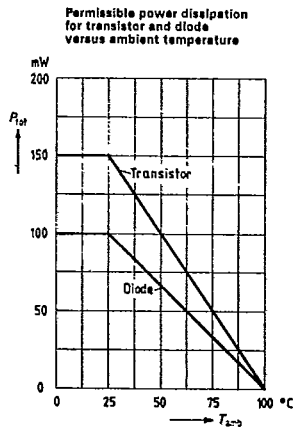
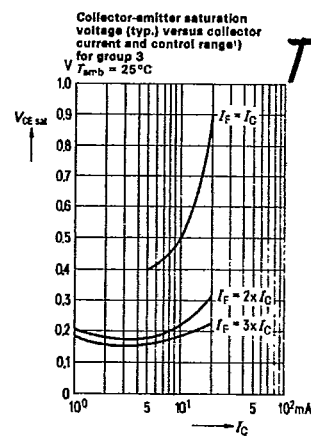
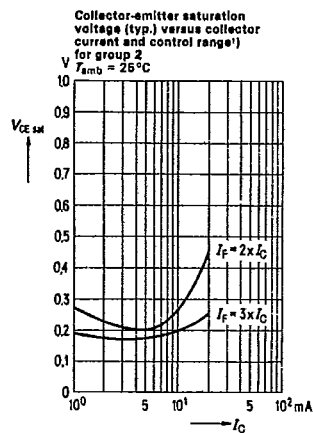
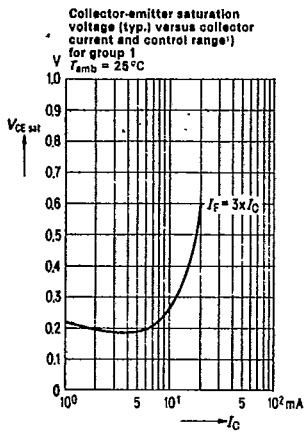
Optocouplers
 (Optoisolators)



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Optocouplers
(Optoisolators)