



ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
INPUT				
Reverse voltage		V _R	6	V
Forward current		I _F	60	mA
Forward surge current	t _p ≤ 10 μs	I _{FSM}	2.5	A
Power dissipation	at 25 °C	P _{diss}	70	mW
OUTPUT				
Collector emitter voltage		V _{CEO}	80	V
Emitter collector voltage		V _{ECO}	7	V
Collector current		I _C	50	mA
	t _p ≤ 1 ms		100	mA
Output power dissipation	at 25 °C	P _{diss}	150	mW
COUPLER				
Isolation test voltage (RMS)	t = 1 min	V _{ISO}	5300	V _{RMS}
Total power dissipation		P _{tot}	200	mW
Operation temperature		T _{amb}	- 55 to + 110	°C
Storage temperature range		T _{stg}	- 55 to + 150	°C
Junction temperature		T _j	125	°C
Soldering temperature ⁽¹⁾	2 mm from case, ≤ 10 s	T _{slid}	260	°C

Notes

- Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.
- Refer to wave profile for soldering conditions for through hole devices (DIP).

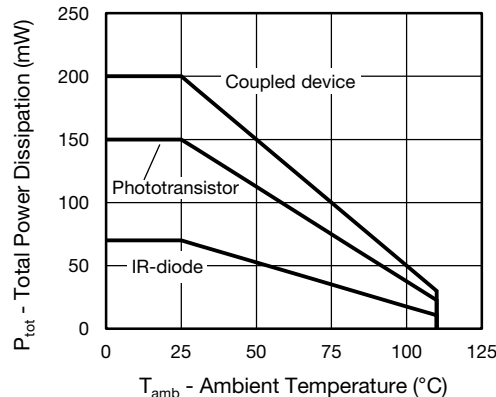


Fig. 1 - Total Power Dissipation vs. Ambient Temperature

ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
INPUT						
Forward voltage	I _F = 60 mA	V _F		1.1	1.6	V
Reverse current	V _R = 6 V	I _R		0.01	10	μA
Junction capacitance	V _R = 0 V, f = 1 MHz	C _j		9		pF
OUTPUT						
Collector emitter leakage current	V _{CE} = 10 V	I _{CEO}		0.3	100	nA
Collector emitter capacitance	V _{CE} = 5 V, f = 1 MHz	C _{CCE}		2.8		pF
Collector emitter breakdown voltage	I _C = 100 μA	BV _{CEO}	80			V
Emitter collector breakdown voltage	I _E = 10 μA	BV _{ECO}	7			V
COUPLER						
Collector emitter saturation voltage	I _F = 10 mA, I _C = 2.5 mA	V _{CEsat}		0.25	0.4	V
Coupling capacitance	f = 1 MHz	C _{IO}		0.3		pF
Cut-off frequency	I _F = 10 mA, V _{CC} = 5 V, R _L = 100 Ω	f _{ctr}		110		kHz

Note

- Minimum and maximum values are testing requirements. Typical values are characteristics of the device and are the result of engineering evaluation. Typical values are for information only and are not part of the testing requirements.

CURRENT TRANSFER RATIO ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
I_C/I_F	$I_F = 5\text{ mA}$, $V_{CE} = 5\text{ V}$	VO617C-1	CTR	40		80	%
		VO617C-2	CTR	63		125	%
		VO617C-3	CTR	100		200	%
		VO617C-4	CTR	160		320	%

SWITCHING CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)							
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT	
NON-SATURATED							
Rise time	$I_C = 2\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 100\text{ }\Omega$	t_r		3			μs
Fall time		t_f		3			μs
Turn-on time		t_{on}		6			μs
Turn-off time		t_{off}		4			μs
SATURATED							
Rise time	$I_F = 1.6\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 1.9\text{ k}\Omega$	t_r		7			μs
Fall time		t_f		12			μs
Turn-on time		t_{on}		9			μs
Turn-off time		t_{off}		15			μs

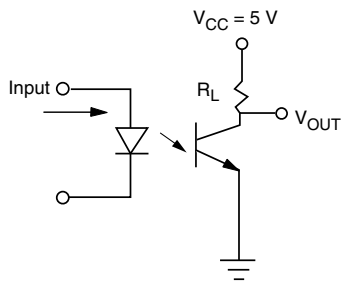


Fig. 2 - Test Circuit

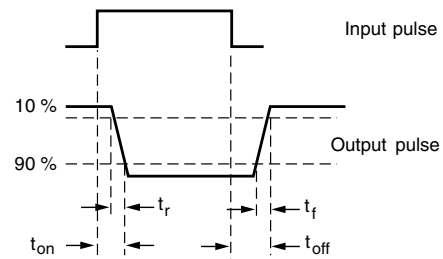


Fig. 3 - Test Circuit and Waveforms

SAFETY AND INSULATION RATINGS				
PARAMETER		SYMBOL	VALUE	UNIT
MAXIMUM SAFETY RATINGS				
Output safety power		P_{SO}	700	mW
Input safety current		I_{si}	400	mW
Safety temperature		T_S	175	$^{\circ}\text{C}$
Comparative tracking index		CTI	175	
INSULATION RATED PARAMETERS				
Maximum withstanding isolation voltage		V_{ISO}	5300	V_{RMS}
Maximum transient isolation voltage		V_{IOTM}	8000	V_{peak}
Maximum repetitive peak isolation voltage		V_{IORM}	565	V_{peak}
		$V_{IORM}^{(1)}$	1140	V_{peak}
Insulation resistance	$T_{amb} = 25\text{ }^{\circ}\text{C}$, $V_{DC} = 500\text{ V}$	R_{IO}	10^{12}	Ω
Insulation resistance	$T_{amb} = 100\text{ }^{\circ}\text{C}$, $V_{DC} = 500\text{ V}$	R_{IO}	10^{11}	Ω
Climatic classification (according to IEC 68 part 1)			55/110/21	
Environment (pollution degree in accordance to DIN VDE 0109)			2	
Internal and external creepage	Standard DIP-4		≥ 7	mm
	400 mil DIP-4, SMD-4 option 9		≥ 8	mm
Clearance	Standard DIP-4		≥ 7	mm
	400 mil DIP-4, SMD-4 option 9		≥ 8	mm
Insulation thickness			0.4	mm

Notes

- As per DIN EN 60747-5-5, § 7.4.3.8.2), this optocoupler is suitable for "safe electrical insulation" only within the safety ratings. Compliance with the safety ratings shall be ensured by means of protective circuits.

(1) Only for option 6.

TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

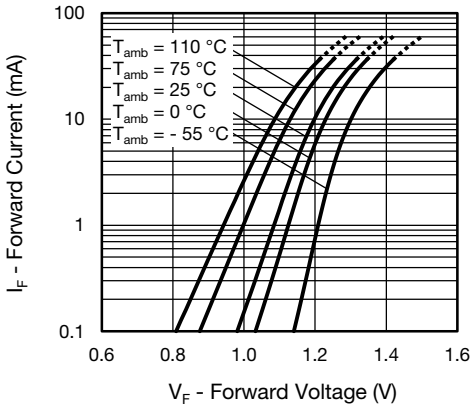


Fig. 4 - Forward Voltage vs. Forward Current

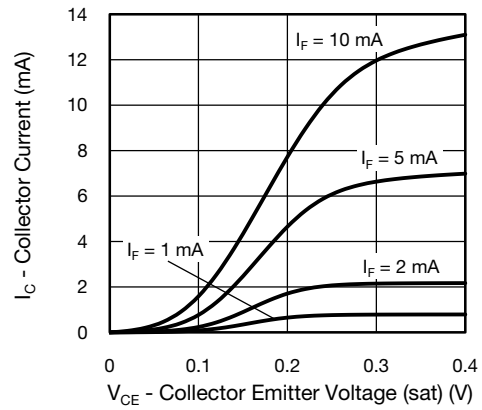


Fig. 7 - Collector Current vs. Collector Emitter Voltage (saturated)

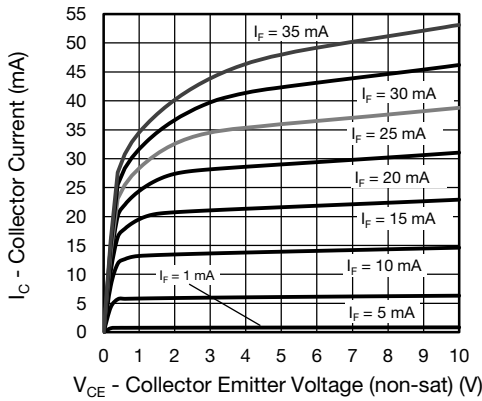


Fig. 5 - Collector Current vs. Collector Emitter Voltage (NS)

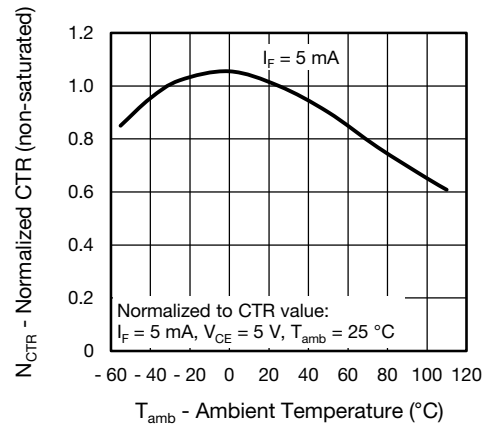


Fig. 8 - Normalized Current Transfer Ratio (non-saturated) vs. Ambient Temperature

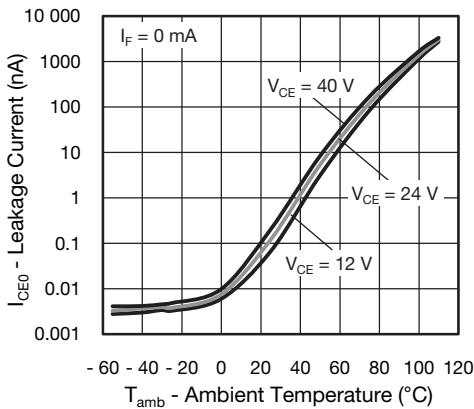


Fig. 6 - Leakage Current vs. Ambient Temperature

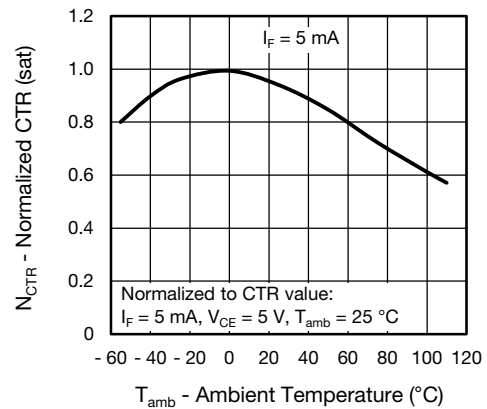


Fig. 9 - Normalized Current Transfer Ratio (saturated) vs. Ambient Temperature

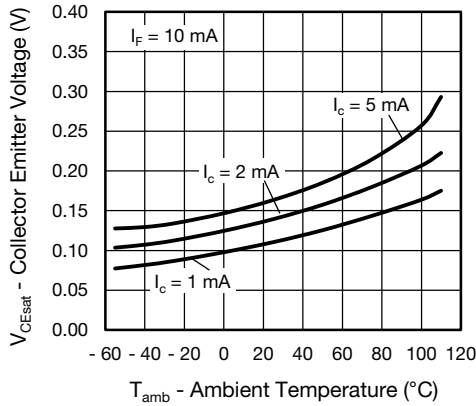


Fig. 10 - Collector Emitter Voltage vs. Ambient Temperature (saturated)

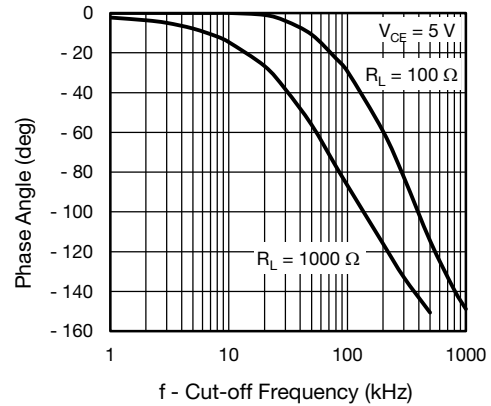


Fig. 13 - F_{CTR} vs. Phase Angle

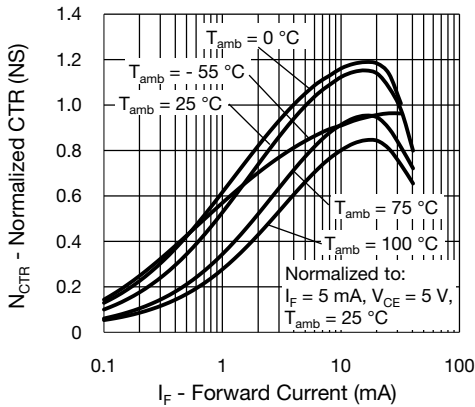


Fig. 11 - Normalized CTR (non-saturated) vs. Forward Current

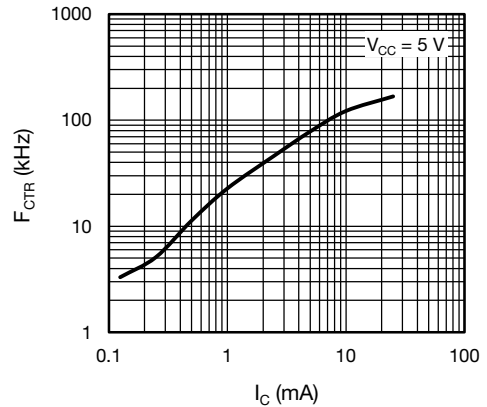


Fig. 14 - F_{CTR} vs. Collector Current

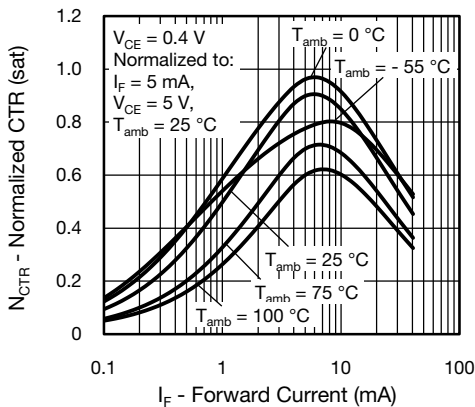


Fig. 12 - Normalized CTR (saturated) vs. Forward Current

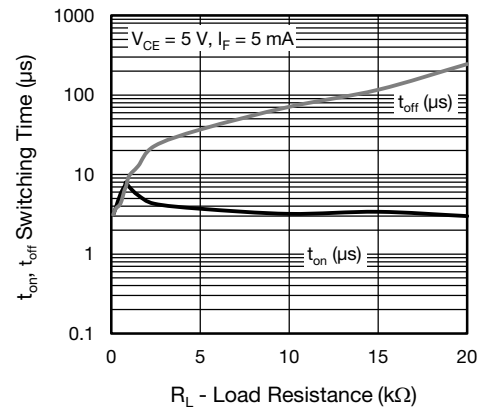
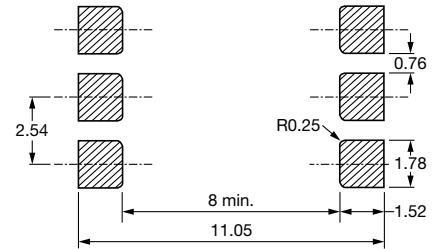
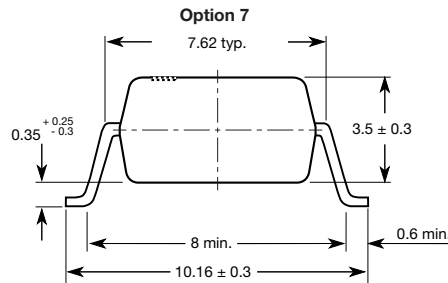
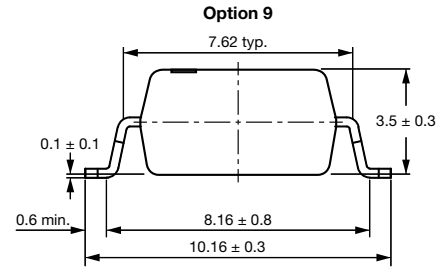
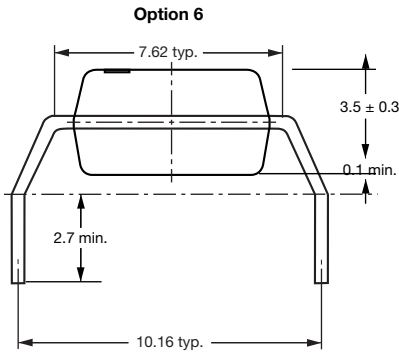
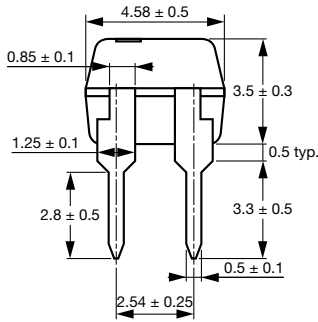
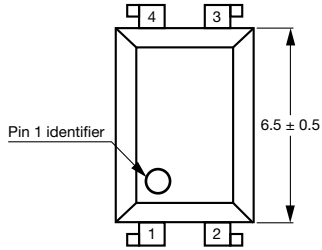


Fig. 15 - Switching Time vs. Load Resistance

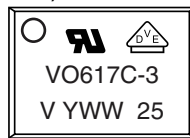


PACKAGE DIMENSIONS in millimeters



i178027-25

PACKAGE MARKING (example of VO617C-3X016)



Note

- Option information is not marked.

PACKING INFORMATION

DEVICE PER TUBE			
TYPE	UNITS/TUBE	TUBES/BOX	UNITS/BOX
DIP-4	100	40	4000

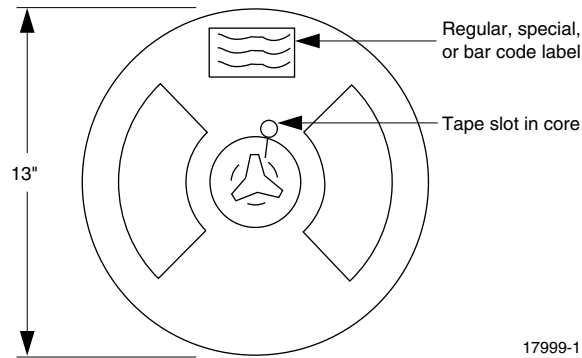


Fig. 16 - Tape and Reel Shipping Medium

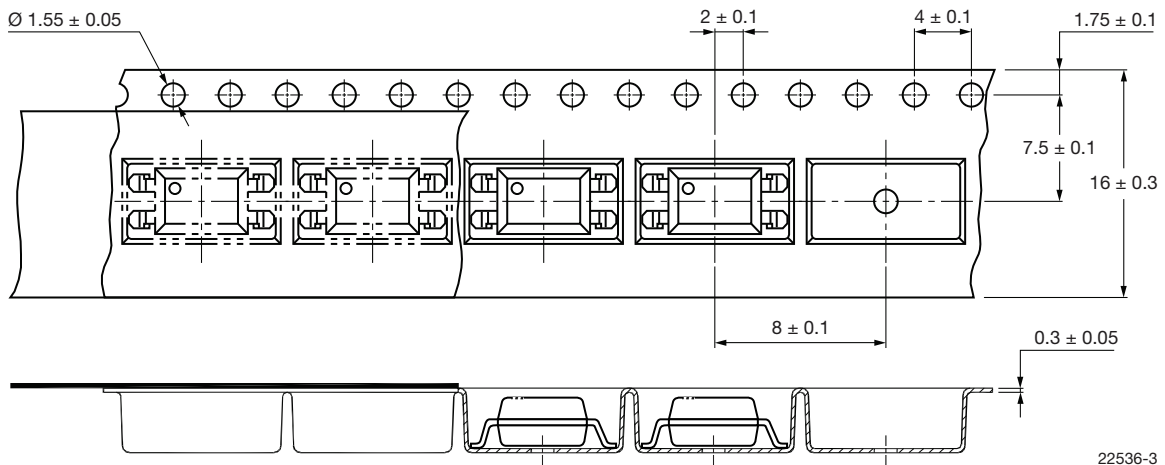


Fig. 17 - Tape Packing for Option 7 and 9 (1000 units per reel)

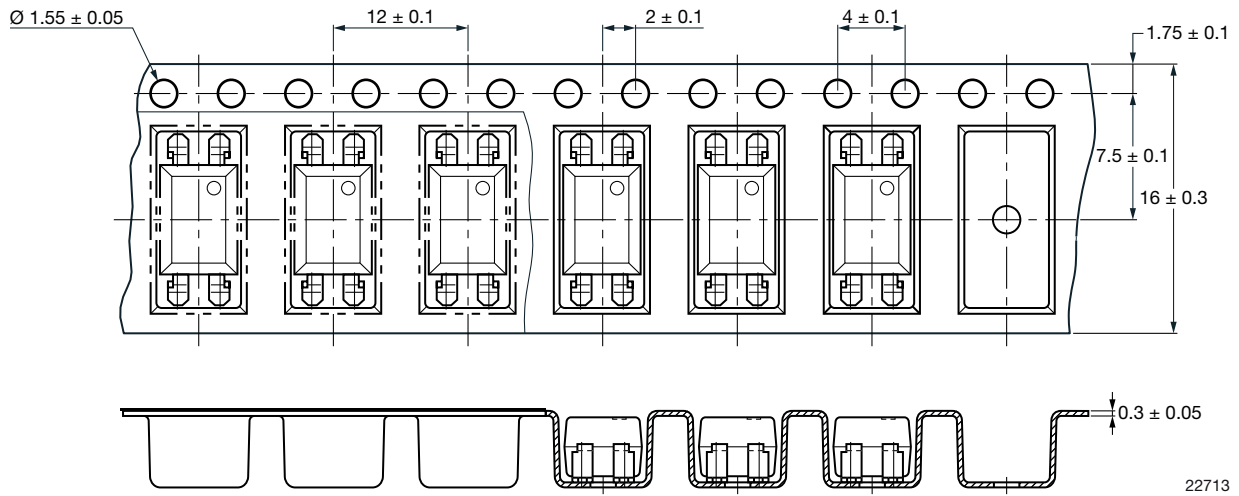


Fig. 18 - Tape Packing for Option 7 and 9, T1 rotation (2000 units per reel)



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