

ABSOLUTE MAXIMUM RATINGS ⁽¹⁾ ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)					
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
INPUT					
Reverse voltage			V_R	6	V
Forward current			I_F	60	mA
Surge current			I_{FSM}	2.5	A
Power dissipation			P_{diss}	100	mW
Derate linearly from 25 °C				1.33	mW/°C
Thermal resistance			R_{th}	750	°C/W
OUTPUT					
Peak off-state voltage		IL4216	V_{DRM}	600	V
		IL4217	V_{DRM}	700	V
		IL4218	V_{DRM}	800	V
RMS on-state current			I_{DRM}	300	mA
Single cycle surge			I_{TSM}	3	A
Power dissipation			P_{diss}	300	mW
Derate linearly from 25 °C				6.6	mW/°C
Thermal resistance			R_{th}	150	°C/W
COUPLER					
Creepage distance				≥ 7	mm
Clearance				≥ 7	mm
Storage temperature			T_{stg}	- 55 to + 150	°C
Ambient temperature			T_{amb}	- 55 to + 100	°C
Isolation test voltage			V_{ISO}	5300	V_{RMS}
Isolation resistance	$V_{IO} = 500\text{ V}, T_{amb} = 25\text{ }^{\circ}\text{C}$		R_{IO}	$\geq 10^{12}$	Ω
	$V_{IO} = 500\text{ V}, T_{amb} = 100\text{ }^{\circ}\text{C}$		R_{IO}	$\geq 10^{11}$	Ω
Lead soldering temperature ⁽²⁾	5 s		T_{sld}	260	°C

Notes

- ⁽¹⁾ 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.
- ⁽²⁾ Refer to reflow profile for soldering conditions for surface mounted devices (SMD). Refer to wave profile for soldering conditions for through hole devices (DIP).



ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
INPUT							
Forward voltage	$I_F = 20\text{ mA}$		V_F		1.3	1.5	V
Breakdown voltage	$I_R = 10\text{ }\mu\text{A}$		V_{BR}	6	30		V
Reverse current	$V_R = 6\text{ V}$		I_R		0.1	10	μA
Input capacitance	$V_F = 0\text{ V}$, $f = 1\text{ MHz}$		C_{IN}		40		pF
Thermal resistance, junction to lead			R_{thjl}		750		$^{\circ}\text{C/W}$
OUTPUT							
Repetitive peak off-state voltage	$I_{DRM} = 100\text{ }\mu\text{A}$	IL4216	V_{DRM}	600	650		V
		IL4217	V_{DRM}	700	750		V
		IL4218	V_{DRM}	800	850		V
Off-state voltage	$I_{D(RMS)} = 70\text{ }\mu\text{A}$	IL4216	$V_{D(RMS)}$	424	460		V
		IL4217	$V_{D(RMS)}$	484	536		V
		IL4218	$V_{D(RMS)}$	565	613		V
Off-state current	$V_D = 600\text{ V}$, $T_{amb} = 100\text{ }^{\circ}\text{C}$		$I_{D(RMS)}$		10	100	μA
Reverse current	$V_R = 600\text{ V}$, $T_{amb} = 25\text{ }^{\circ}\text{C}$		I_{RMS}		10	100	μA
On-state voltage	$I_T = 300\text{ mA}$		V_{TM}		1.7	3	V
On-state current	$PF = 1$, $V_{T(RMS)} = 1.7\text{ V}$		I_{TM}			300	mA
Surge (non-repetitive, on-state current)	$f = 50\text{ Hz}$		I_{TSM}			3	A
Holding current	$V_T = 3\text{ V}$		I_H		65	200	μA
Latching current	$V_T = 2.2\text{ V}$		I_L			500	μA
LED trigger current	$V_{AK} = 5\text{ V}$		I_{FT}		0.7		mA
Critical rate of rise of off-state voltage	$V_D = 0.67\text{ }V_{DRM}$, $T_{amb} = 25\text{ }^{\circ}\text{C}$		dV/dt_{cr}	10 000			V/ μs
	$V_D = 0.67\text{ }V_{DRM}$, $T_{amb} = 80\text{ }^{\circ}\text{C}$		dV/dt_{cr}	5000			V/ μs
Critical rate of rise of voltage at current commutation	$V_D = 230\text{ }V_{RMS}$, $I_D = 300\text{ mA}_{RMS}$, $T_J = 25\text{ }^{\circ}\text{C}$		dV/dt_{crq}		8		V/ μs
	$V_D = 230\text{ }V_{RMS}$, $I_D = 300\text{ mA}_{RMS}$, $T_J = 85\text{ }^{\circ}\text{C}$		dV/dt_{crq}		7		V/ μs
Critical rate of rise of on-state current commutation	$V_D = 230\text{ }V_{RMS}$, $I_D = 300\text{ mA}_{RMS}$, $T_J = 25\text{ }^{\circ}\text{C}$		dI/dt_{crq}		12		A/ms
Thermal resistance, junction to lead			R_{thjl}		150		$^{\circ}\text{C/W}$
COUPLER							
Capacitance (input to output)	$f = 1\text{ MHz}$, $V_{IO} = 0\text{ V}$		C_{IO}		0.8		pF
Critical rate of rise of coupled input to output voltage	$I_T = 0$, $V_{RM} = V_{DM} = 300\text{ VAC}$		$dV_{(IO)}/dt$	5000	1		mA

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.

POWER FACTOR CONSIDERATIONS

A snubber is not needed to eliminate false operation of the TRIAC driver because of the IL4216, IL4217, IL4218 high static and commutating dV/dt with loads between 1 and 0.8 power factors. When inductive loads with power factors less than 0.8 are being driven, include a RC snubber or a single capacitor directly across the device to damp the peak commutating dV/dt spike. Normally a commutating dV/dt causes a turning-off device to stay on due to the stored energy remaining in the turning-off device.

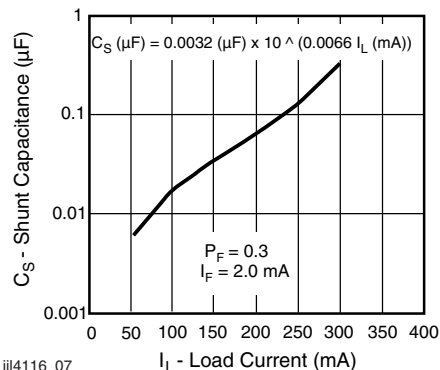


Fig. 1 - Shunt Capacitance vs. Load Current vs. Power Factor

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

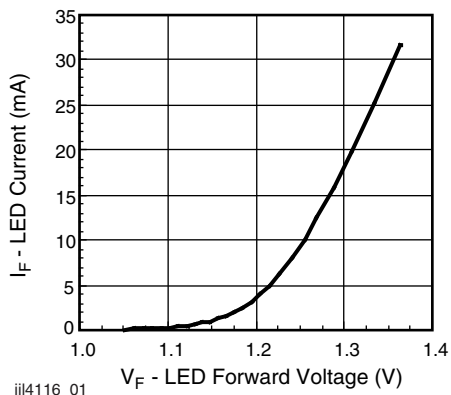


Fig. 2 - LED Forward Current vs. Forward Voltage

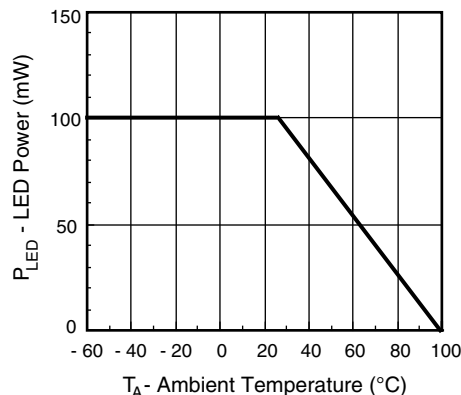


Fig. 5 - Maximum LED Power Dissipation

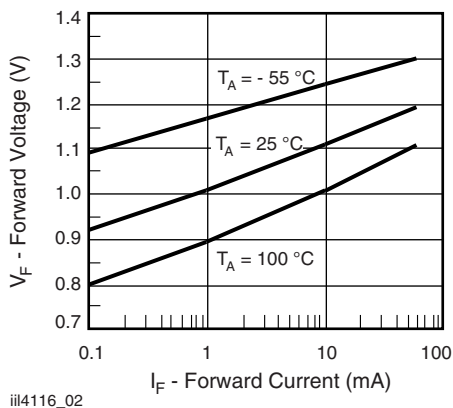


Fig. 3 - Forward Voltage vs. Forward Current

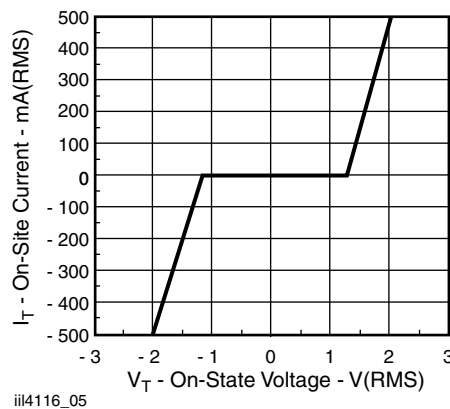


Fig. 6 - On-State Terminal Voltage vs. Terminal Current

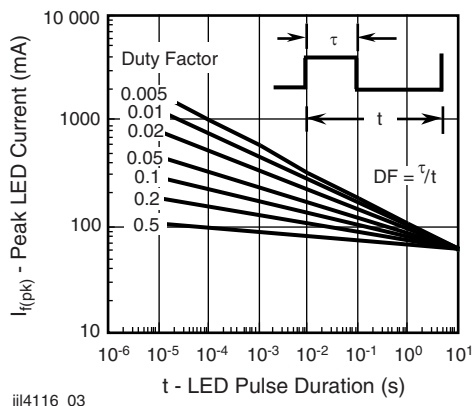


Fig. 4 - Peak LED Current vs. Duty Factor, τ

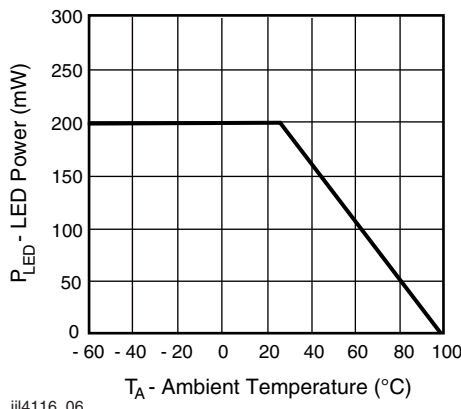


Fig. 7 - Maximum Output Power Dissipation

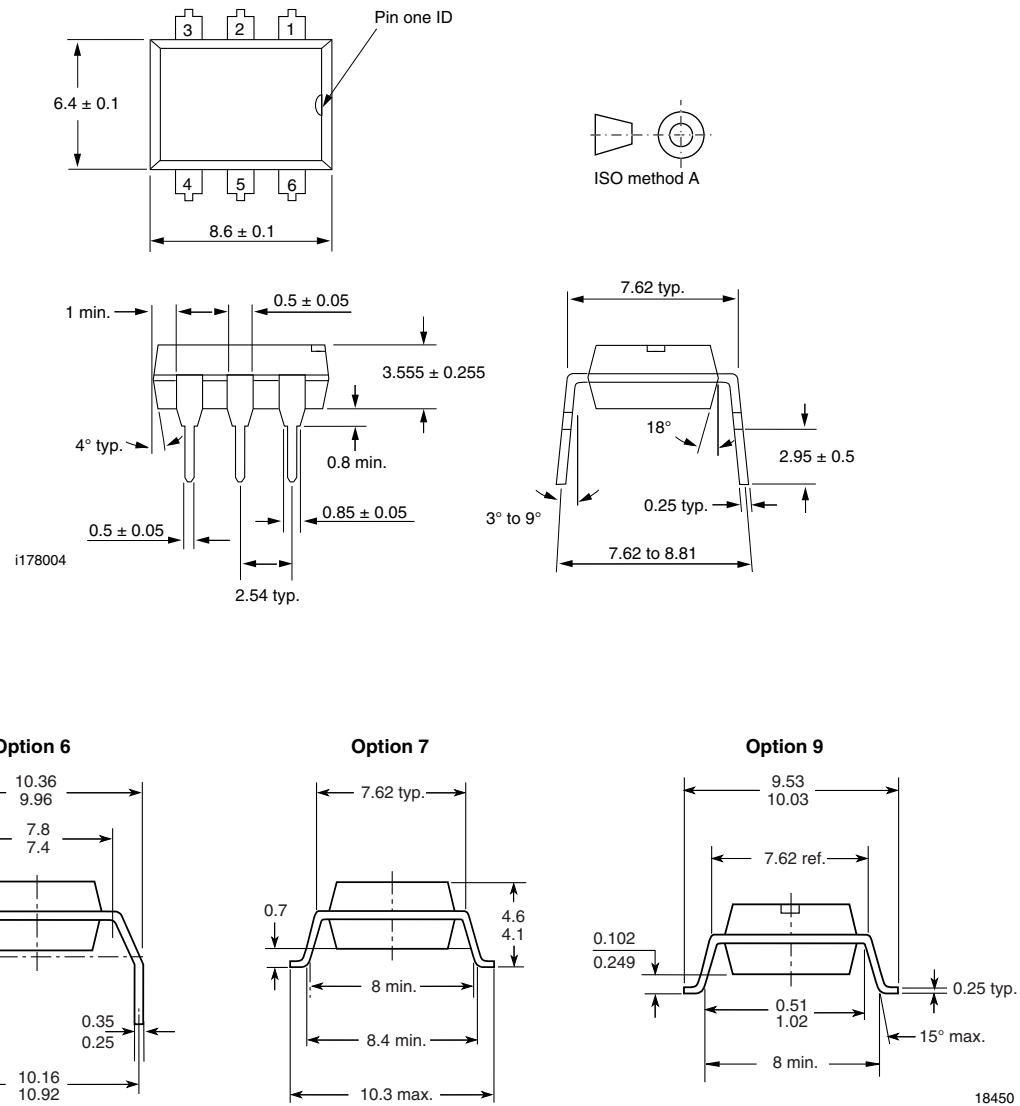


IL4216, IL4217, IL4218

Optocoupler, Phototriac Output,
High dV/dt, Low Input Current

Vishay Semiconductors

PACKAGE DIMENSIONS in millimeters





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