





ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)					
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
<b>INPUT</b>					
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 from 25 °C				1.33	mW/°C
<b>OUTPUT</b>					
Peak off-state voltage		IL420	$V_{DRM}$	600	V
		IL4208	$V_{DRM}$	800	V
RMS on-state current			$I_{TM}$	300	mA
Single cycle surge current			$I_{TSM}$	3	A
Power dissipation			$P_{diss}$	500	mW
Derate from 25 °C				6.6	mW/°C
<b>COUPLER</b>					
Isolation test voltage between emitter and detector	$t = 1\text{ s}$		$V_{ISO}$	5300	$V_{RMS}$
Isolation resistance	$V_{IO} = 500\text{ V}, T_{amb} = 25\text{ }^{\circ}\text{C}$		$R_{IO}$	$\geq 10^{12}$	$\Omega$
	$V_{IO} = 500\text{ V}, T_{amb} = 100\text{ }^{\circ}\text{C}$		$R_{IO}$	$\geq 10^{11}$	$\Omega$
Storage temperature range			$T_{stg}$	- 55 to + 150	°C
Ambient temperature range			$T_{amb}$	- 55 to + 100	°C
Soldering temperature <sup>(1)</sup>	max. $\leq 10\text{ s}$ dip soldering $\geq 0.5\text{ mm}$ from case bottom		$T_{sld}$	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 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	SYMBOL	MIN.	TYP.	MAX.	UNIT
<b>INPUT</b>						
Forward voltage	$I_F = 10\text{ mA}$	$V_F$		1.16	1.35	V
Reverse current	$V_R = 6\text{ V}$	$I_R$		0.1	10	$\mu\text{A}$
Input capacitance	$V_F = 0\text{ V}, f = 1\text{ MHz}$	$C_{IN}$		40		pF
Thermal resistance, junction to ambient		$R_{thja}$		750		°C/W
<b>OUTPUT</b>						
Off-state current	$V_D = V_{DRM}, T_{amb} = 100\text{ }^{\circ}\text{C}$	$I_{DRM}$		10	100	$\mu\text{A}$
On-state voltage	$I_T = 300\text{ mA}$	$V_{TM}$		1.7	3	V
Surge (non-repetitive), on-state current	$f = 50\text{ Hz}$	$I_{TSM}$			3	A
Holding current		$I_H$		65	500	$\mu\text{A}$
Latching current	$V_T = 2.2\text{ V}$	$I_L$			500	$\mu\text{A}$
LED trigger current	$V_D = 5\text{ V}$	$I_{FT}$		1	2	mA
Trigger current temperature gradient		$\Delta I_{FT}/\Delta T_j$		7	14	$\mu\text{A}/^{\circ}\text{C}$
Critical rate of rise off-state voltage	$V_D = 0.67 V_{DRM}, T_j = 25\text{ }^{\circ}\text{C}$	$dV/dt_{cr}$	10 000			V/ $\mu\text{s}$
	$V_D = 0.67 V_{DRM}, T_j = 80\text{ }^{\circ}\text{C}$	$dV/dt_{cr}$	5000			V/ $\mu\text{s}$
Critical rate of rise of voltage at current commutation	$V_D = 230 V_{RMS}, I_D = 300\text{ mA}_{RMS}, T_j = 25\text{ }^{\circ}\text{C}$	$dV/dt_{crq}$		8		V/ $\mu\text{s}$
	$V_D = 230 V_{RMS}, I_D = 300\text{ mA}_{RMS}, T_j = 85\text{ }^{\circ}\text{C}$	$dV/dt_{crq}$		7		V/ $\mu\text{s}$
Critical rate of rise of on-state current commutation		$dI/dt_{crq}$		12		A/ms
Thermal resistance, junction to ambient		$R_{thja}$		150		°C/W



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
<b>COUPLER</b>						
Critical rate of rise of coupled input/output voltage	$I_T = 0\text{ A}$ , $V_{RM} = V_{DM} = V_{DRM}$	dV/dt		5000		V/ $\mu\text{s}$
Capacitance (input to output)	$f = 1\text{ MHz}$ , $V_{IO} = 0\text{ V}$	$C_{IO}$		0.8		pF

**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.

<b>SWITCHING CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Turn-on time	$V_{RM} = V_{DM} = V_{DRM}$	$t_{on}$		35		$\mu\text{s}$

<b>SAFETY AND INSULATION RATINGS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Climatic classification (according to IEC68 part 1)				55/100/21		
Comparative tracking index		CTI	175		399	
$V_{IOTM}$			8000			V
$V_{IORM}$			630			V
$P_{SO}$					500	mW
$I_{SI}$					250	mA
$T_{SI}$					175	$^{\circ}\text{C}$
Creepage distance	Standard DIP-8		7			mm
Clearance distance	Standard DIP-8		7			mm
Creepage distance	400 mil DIP-8		8			mm
Clearance distance	400 mil DIP-8		8			mm
Insulation thickness	For IL4208 only		0.4			mm

**Note**

- As per IEC60747-5-2, § 7.4.3.8.1, 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.

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

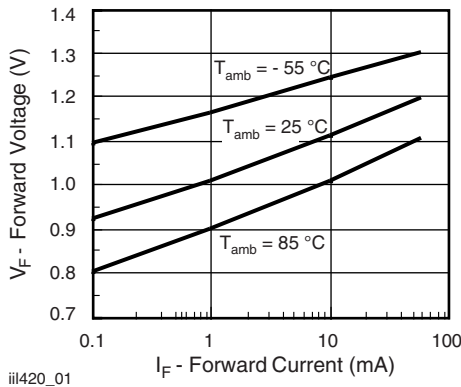


Fig. 1 - Forward Voltage vs. Forward Current

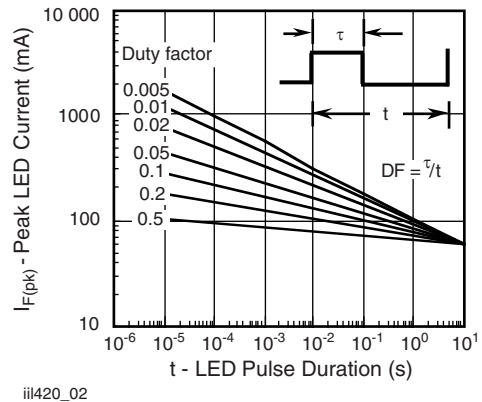


Fig. 2 - Peak LED Current vs. Duty Factor,  $\tau$

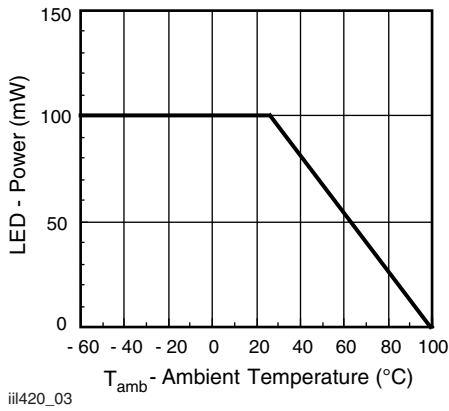


Fig. 3 - Maximum LED Power Dissipation



Fig. 6 - Current Reduction



Fig. 4 - Typical Output Characteristics

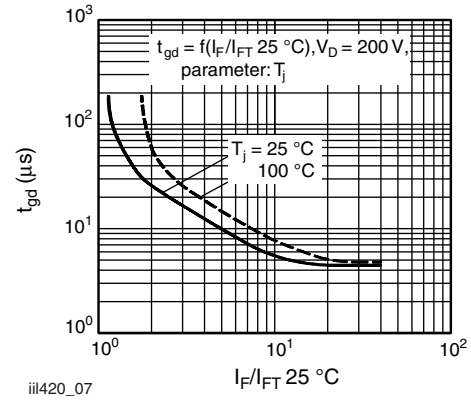


Fig. 7 - Typical Trigger Delay Time



Fig. 5 - Current Reduction



Fig. 8 - Typical Off-State Current

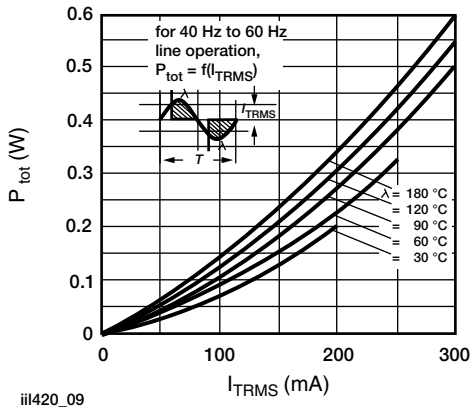


Fig. 9 - Power Dissipation

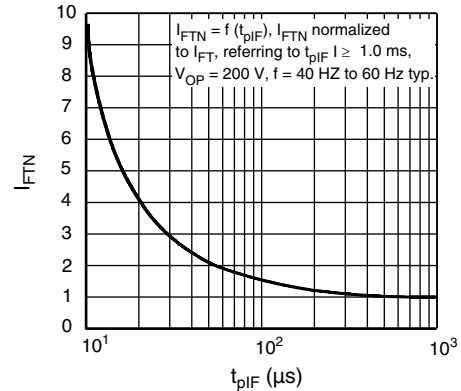
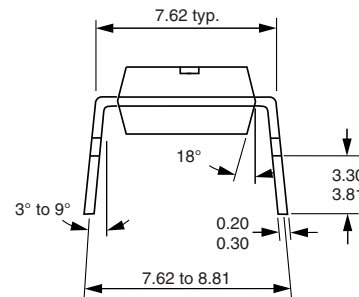
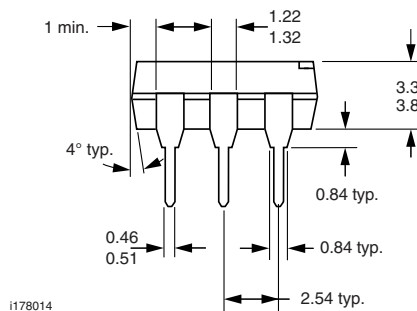
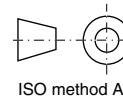
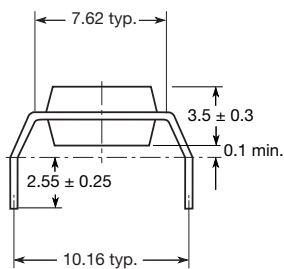


Fig. 10 - Pulse Trigger Current

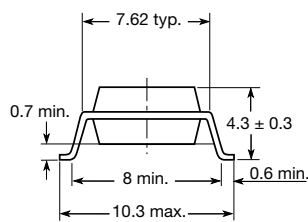
**PACKAGE DIMENSIONS** in millimeters



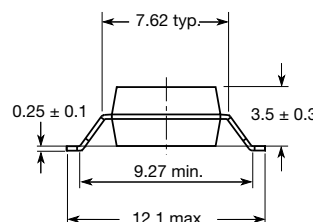
**Option 6**



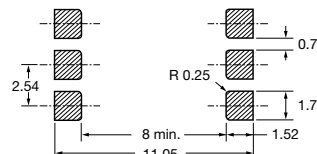
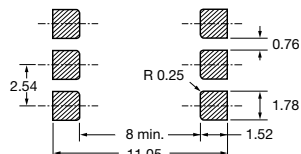
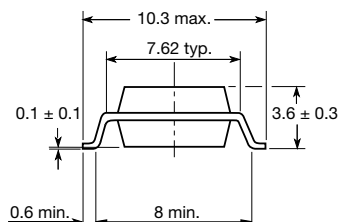
**Option 7**



**Option 8**



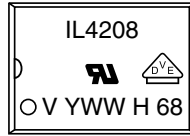
**Option 9**



20802-25



**PACKAGE MARKING** (example)



**Notes**

- Only options 1, 7, and 8 are reflected in the package marking.
- The VDE Logo is only marked on option 1 parts.
- Tape and reel suffix (T) is not part of the package marking.



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