

1.Description

UMW LTV-356T is a small shape chip optoelectronic coupling device, suitable for surface mount production. LTV-356T is an optocoupler composed of a GaAs light-emitting diode and a phototransistor. Its volume is smaller than DIP, and it is suitable for high-density surface mount applications, such as programmable logic controller.

3.Features

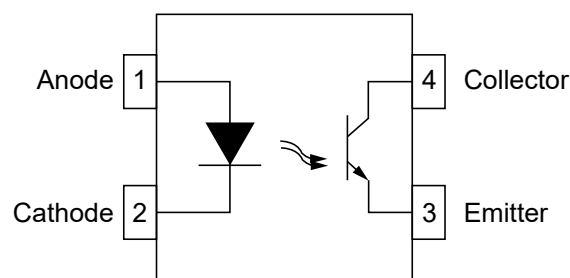
- Current conversion ratio (CTR)
range: 50 ~ 600% ($I_F=5\text{mA}$, $V_{CE}=5\text{V}$)
- Input output isolation voltage ($V_{ISO}=3750V_{RMS}$)
- Collector Emitter Breakdown Voltage $B_{V_{CEO}} \geq 80\text{V}$

2.Applications

- Switching power supply, smart meter
- Industrial control, measuring instruments
- Office equipment, such as copiers
- Such as household appliances, fans, etc

- Working temperature: - 55 - 110 °C
- UL -approved : UL 1577, File No.E547318
- Accord with REACH and RoHS

4.Pinning information



SOP-4



5. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input			
Forward Current	I_F	50	mA
Forward Pulse Current	I_{FP}	1	A
Reverse Voltage	V_R	6	V
Power Waste	P	70	mW
Junction Temperature	T_J	125	°C
Output			
Collector Power Consumption	P_C	150	mW
Collector Current	I_C	50	mA
Collector Emitter Voltage	V_{CEO}	80	V
Emitter Collector Voltage	V_{ECO}	7	V
Junction Temperature	T_J	125	°C
Total Power Dissipation	P_{TOT}	200	mW
Isolation Voltage	V_{ISO}	3750	Vrms
Working Temperature	T_{OPR}	-55 to 110	°C
Storage Temperature	T_{STG}	-55 to 125	°C
Welding Temperature	T_{SOL}	260	°C



6. Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
INPUT						
Forward Voltage	V_F	$I_F=20\text{mA}$		1.2	1.4	V
Reverse Current	I_R	$V_R=5\text{V}$			10	μA
Terminal capacitance	C_t	$V=0, f=1\text{kHz}$		30	250	pF
OUTPUT						
Collector Dark Current	I_{CEO}	$V_{CE}=70\text{V}$			100	nA
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=0.1\text{mA}, I_F=0$	80			V
	BV_{ECO}	$I_E=0.1\text{mA}, I_F=0$	7			V
Transmission Characteristics						
Current conversion ratio	CTR	$I_F=5\text{mA}, V_{CE}=5\text{V}$	50		600	%
Collector Emitter Saturation Voltage Drop	$V_{CE(sat)}$	$I_F=20\text{mA}, I_C=1\text{mA}$		0.1	0.2	V
Isolation resistance	R_{ISO}	DC1000V, 40 ~ 60% R.H.	1×10^{11}			Ω
Isolation capacitance	C_f	$V=0, f=1\text{MHz}$		0.6	1	pF
Collector Emitter capacitance	C_{CE}	$V=0, f=1\text{MHz}$		10		pF
Cut-off Frequency	F_C	$V_{CE}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega, -3\text{dB}$		80		kHz
Switching Time						
rise time	T_r	$V_{CE}=10\text{V}, I_C=2\text{mA}$		4	18	μs
Descent time	T_f	$R_L=100\Omega$		3	18	μs

* $CTR = I_C / I_F \times 100\%$



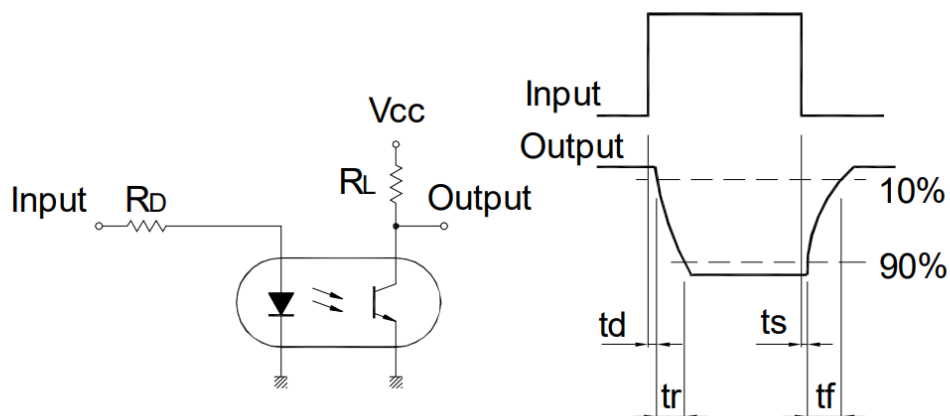
7.CTR classification table

Model	Classification standard	I _c (mA)		Corresponding CTR%	
		I _F =5mA, V _{CE} =5V, Ta=25°C		I _F =5mA, V _{CE} =5V, Ta=25°C	
		Min	Max	Min	Max
UMW LTV-356T	Blank	2.5	30	50	600
	A	4	8	80	160
	B	6.5	13	130	260
	C	10	20	200	400
	D	15	30	300	600
	A or B	4	13	80	160
	B or C	6.5	20	130	400
	C or D	10	30	200	600
	A.B or C	4	20	80	400
	B,C or D	6.5	30	130	600
	A,B,C or D	4	30	80	600

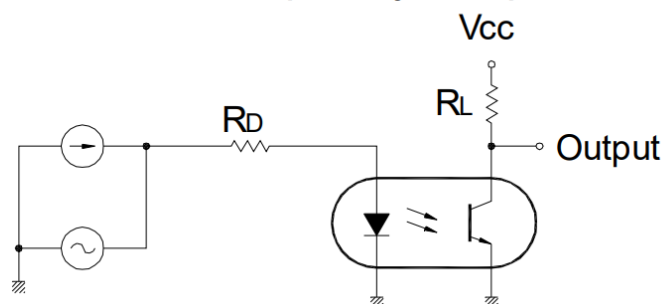


8. Test circuit

Test Circuit for Response Time

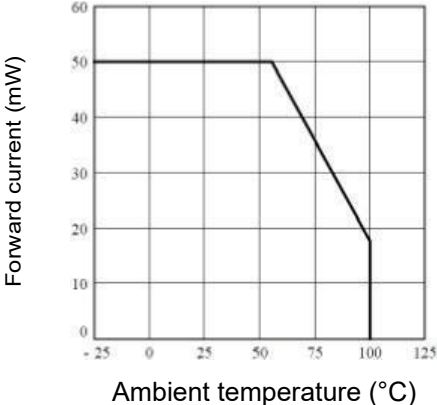
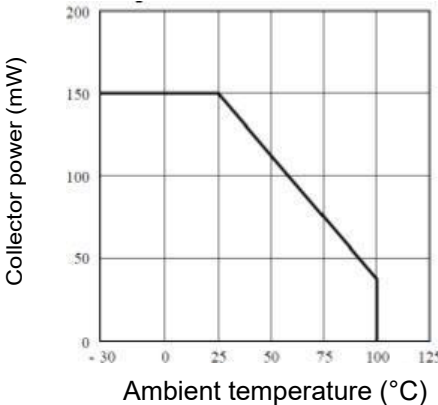
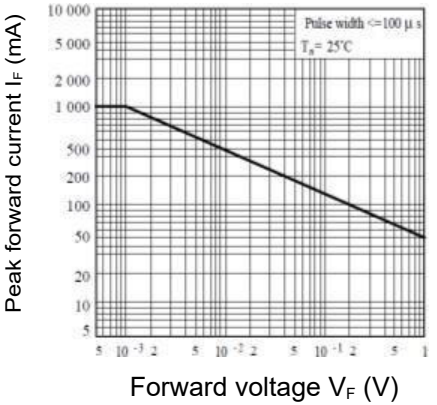
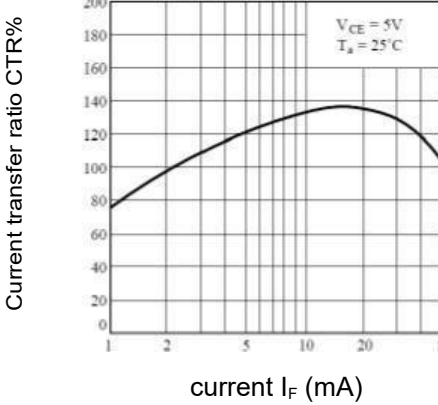
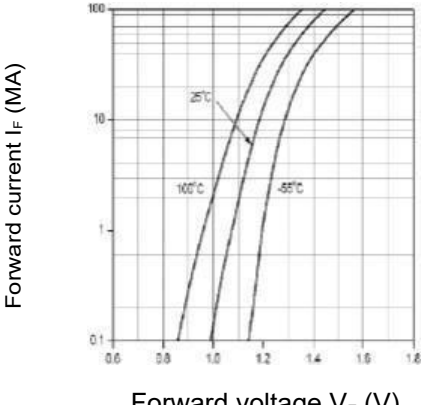
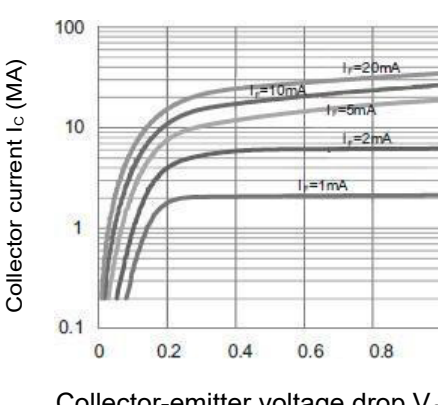


Test Circuit for Frequency Response





9.1Typical Characteristic

	
Figure 1: I_F - T_a	Figure 2: P_C - T_a
	
Figure 3: I_{FM} - D_R	Figure 4: CTR - I_F
	
Figure 5: I_F - V_F	Figure 6: I_C - V_{CE}



9.2 Typical Characteristic

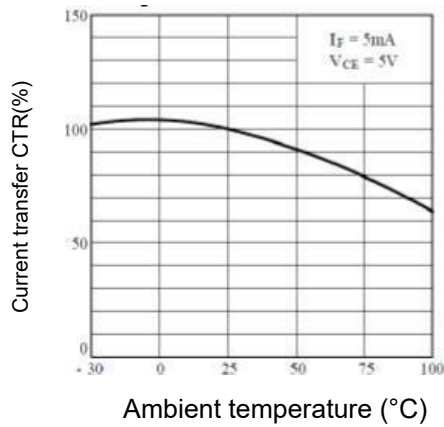
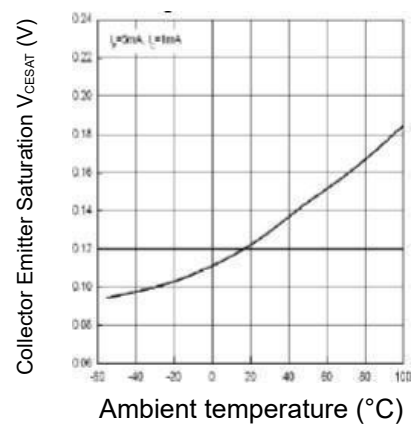
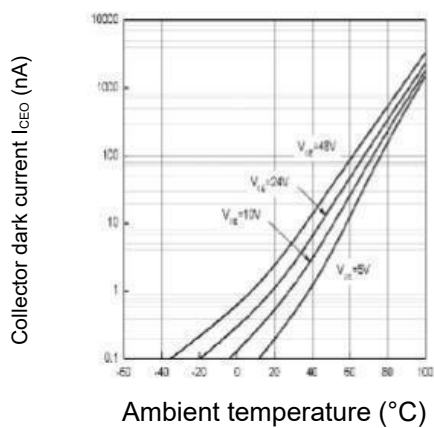
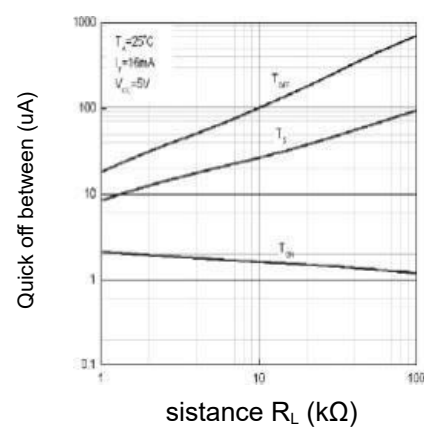
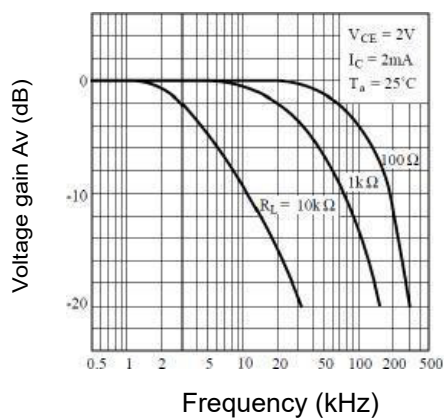
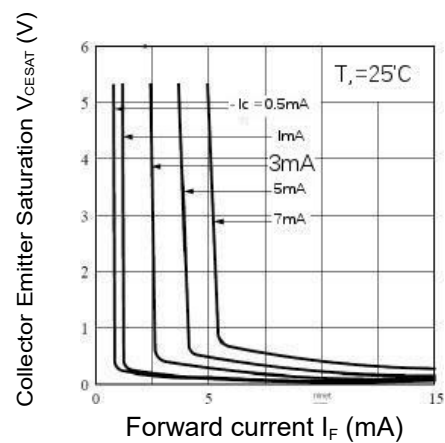
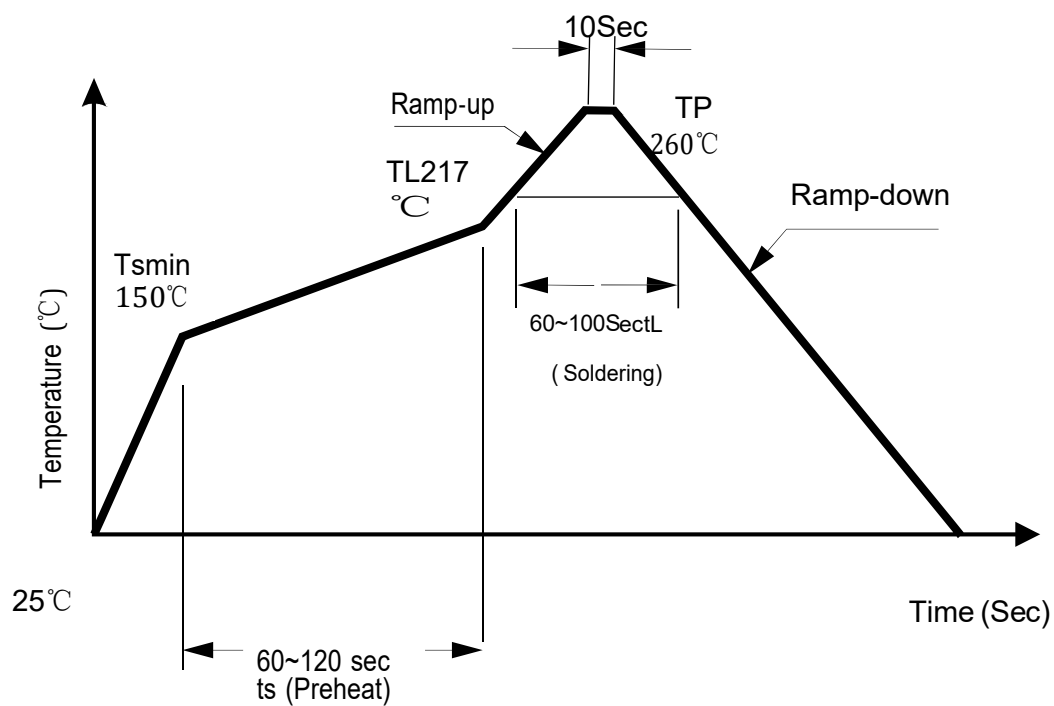


Figure 7: CTR-Ta

Figure 8: $V_{CE(SAT)}$ -TaFigure 9: I_{CEO} -TaFigure 10: Switching Time- R_L Figure 11: A_v -fFigure 12: $V_{CE(SAT)}$ - I_F

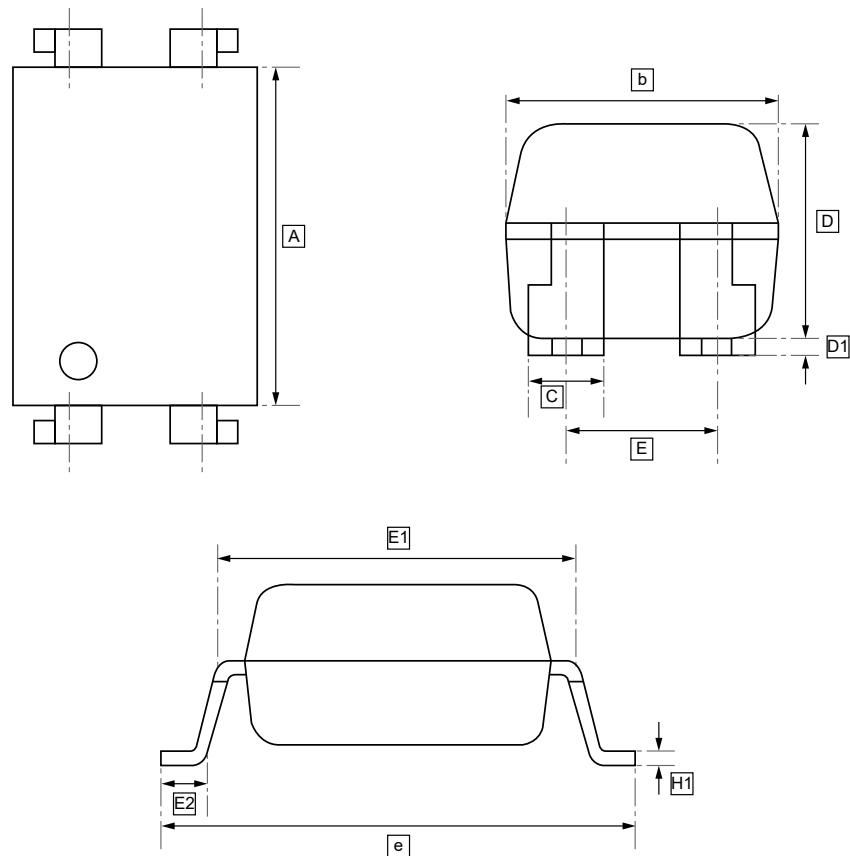


10.Reflow temperature curve





11.SOP-4 Package Outline Dimensions

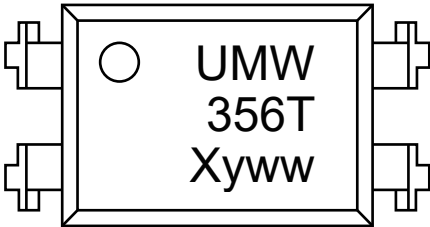


DIMENSIONS (mm are the original dimensions)

Symbol	A	b	C	D	D1	E	E1	E2	e	H1
Min	6.15	4.33	1.1	3.4	0.05	2.29	7.37	0.75	9.85	0.26
Max	6.65	4.83	1.3	3.9	0.6	2.79	7.87	1.25	10.45	



12.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW LTV-356T-A	SOP-4	3000	Tape and reel
UMW LTV-356T-B	SOP-4	3000	Tape and reel
UMW LTV-356T-C	SOP-4	3000	Tape and reel
UMW LTV-356T-D	SOP-4	3000	Tape and reel



13.Disclaimer

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