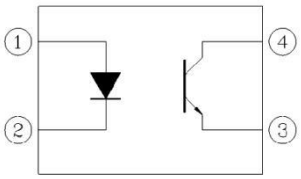
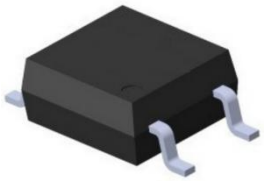
Schematic





PinConfiguration
1. Anode
2. Cathode
3. Emitter
4. Collector

Features:

- Halogens free
  (Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)
- Current transfer ratio
  (CTR: 50~600% at IF =5mA, VCE =5V)
- High isolation voltage between input and output (Viso=3750 V rms)
- Compact 4 Pin SSOP with a 2.0 mm profile
- Compliance with EU REACH
- Pb free and RoHS compliant.

Description:

The PC357 series devices consist of an infrared emitting diode, optically coupled to a phototransistor detector encapsulated with green compound.
They are packaged in a 4-pin small outline SMD package.

Applications:

- DC-DC Converters
- Programmable controllers
- Telecommunication equipments
- Signal transmission between circuits of different potentials and impedances

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Intput	Forward current	I_F	50	mA
	Peak forward current (1us, pulse)	I_{FP}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation Derating factor (above Ta = 90°C)	P_D	70	mW
			2.9	mW/°C
Output	Power dissipation Derating factor (above Ta = 70°C)	P_C	150	mW
			3.7	mW/°C
	Collector current	I_C	50	mA
	Collector-Emitter voltage	V_{CEO}	80	V
	Emitter-Collector voltage	V_{ECO}	7	V
Total Power Dissipation		P_{TOT}	200	mW
Isolation Voltage*1		V_{ISO}	3750	Vrms
Operating temperature		T_{OPR}	-55 ~ +110	°C
Storage temperature		T_{STG}	-55 ~ +125	°C
Soldering Temperature*2		Tsol	260	°C

Notes:
*1 .AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1, 2 are shorted together, and pins 3, 4 are shorted together.
*2 .For 10 seconds

Electro-Optical Characteristics (Ta=25°C unless specified otherwise)

Input

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Forward voltage	V_F	-	1.2	1.4	V	I_F = 20mA
Reverse current	I_R	-	-	10	μA	V_R = 4V
Input capacitance	C_{in}	-	30	250	pF	V = 0, f = 1kHz

Output

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Collector-Emitter dark current	I_{CEO}	-	-	100	nA	V_{CE} = 20V, I_F = 0mA
Collector-Emitter breakdown voltage	BV_{CEO}	80	-	-	V	I_C = 0.1mA
Emitter-Collector breakdown voltage	BV_{ECO}	7	-	-	V	I_E = 0.1mA

Transfer Characteristics (Ta=25°C unless specified otherwise)

Parameter		Symbol	Min	Typ	Max	Unit	Condition
Current Transfer ratio	PC357	CTR	50	-	600	%	I_F = 5mA ,V_{CE} = 5V
	PC357A		80	-	160		
	PC357B		130	-	260		
	PC357C		200	-	400		
	PC357D		300	-	600		
	PC357E		100	-	200		
	PC357F		150	-	300		
Collector-Emitter saturation voltage		$V_{CE(sat)}$	-	0.1	0.2	V	I_F = 10mA ,I_C = 1mA
Isolation resistance		R_{IO}	5×10^{10}	-	-	Ω	V_{IO} = 500Vdc, 40~60% R.H.
Floating capacitance		C_{IO}	-	0.6	1.0	pF	V_{IO} = 0, f = 1MHz
Rise time		t_r	-	3	18	μs	V_{CE} = 2V, I_C = 2mA, R_L = 100 Ω
Fall time		t_f	-	4	18	μs	

* Typical values at Ta = 25°C

Typical Electro Optical Characteristics Curves

Figure 1. Forward Current vs Forward Voltage

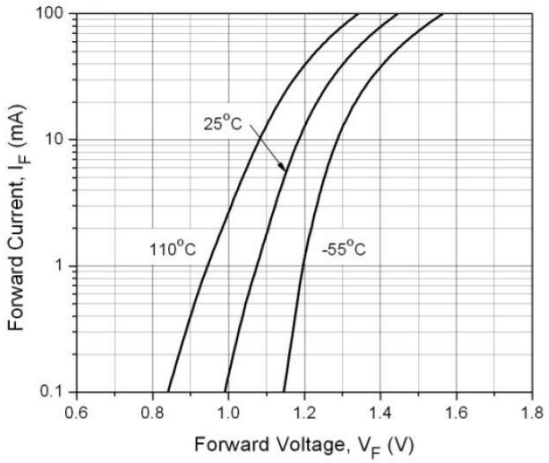


Figure 2. Normalized Collector Current vs Forward Current

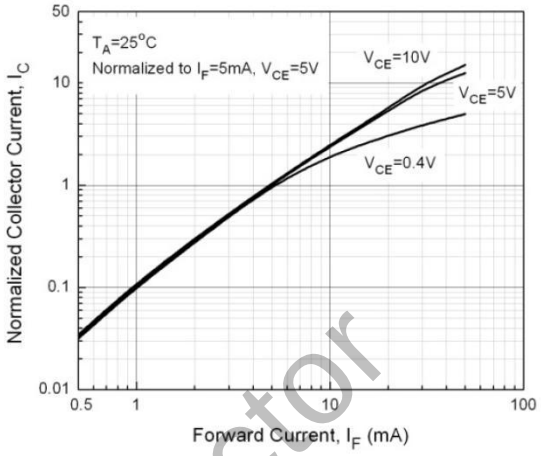


Figure 3. Normalized Current Transfer Ratio vs Forward Current

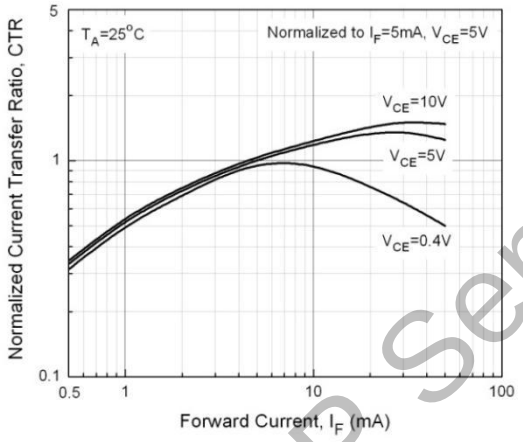


Figure 4. Normalized Collector Current vs Ambient Temperature

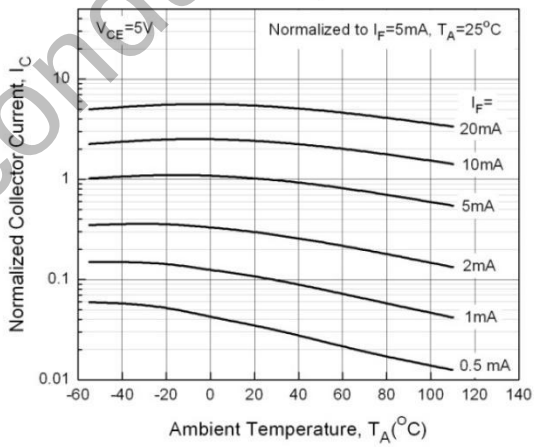


Figure 5. Collector Current vs Collector-Emitter Voltage

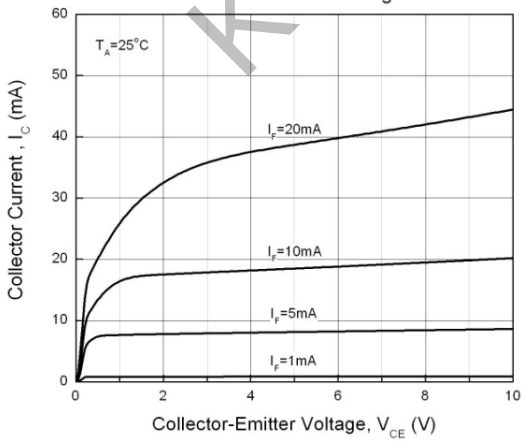


Figure 6. Collector Current vs Collector-Emitter Voltage

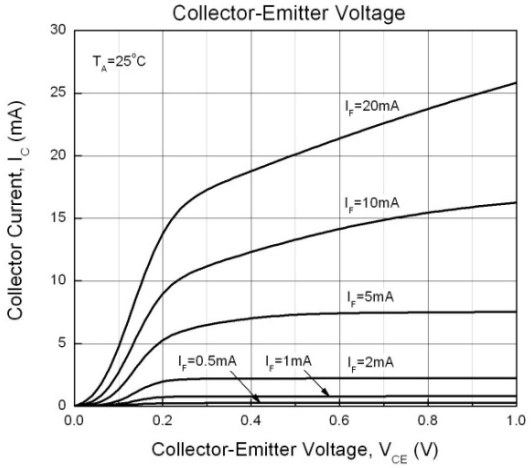


Figure 7. Collector Current vs Collector-Emitter Voltage

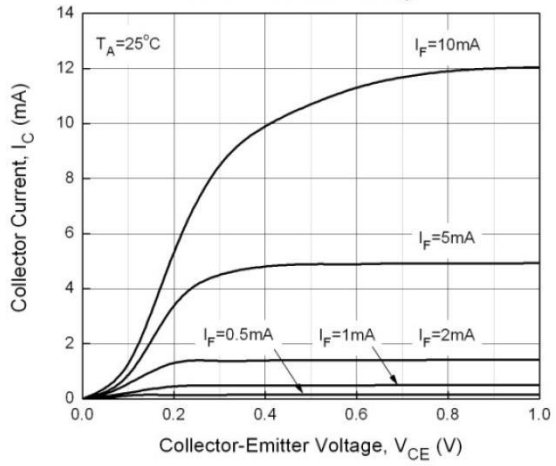


Figure 8. Collector Dark Current vs Ambient Temperature

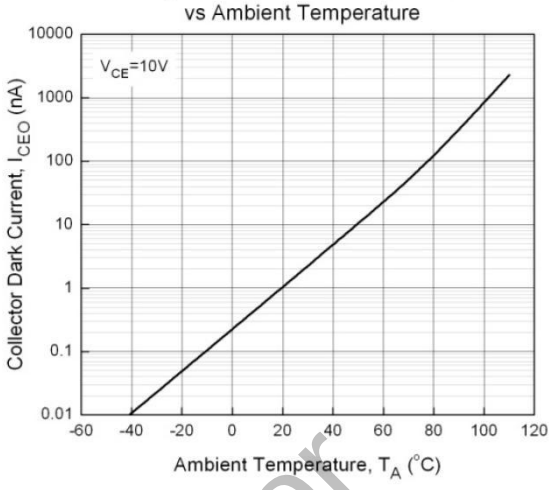


Figure 9. Collector-Emitter Saturation Voltage vs Ambient Temperature

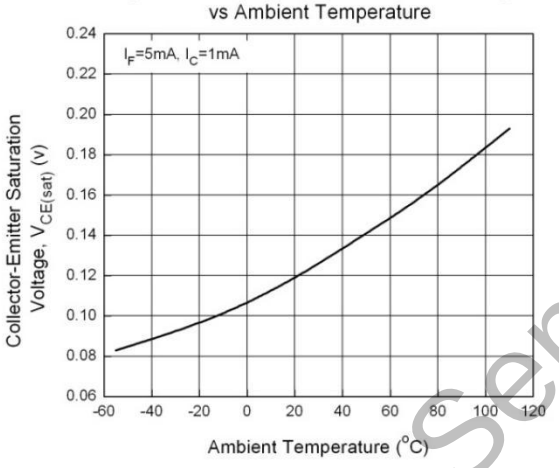
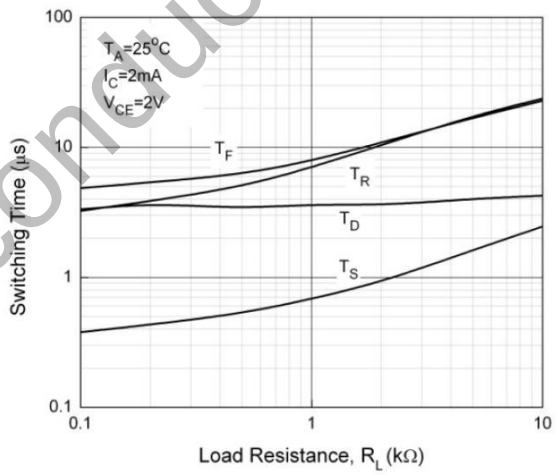


Figure 10. Switching Time vs Load Resistance



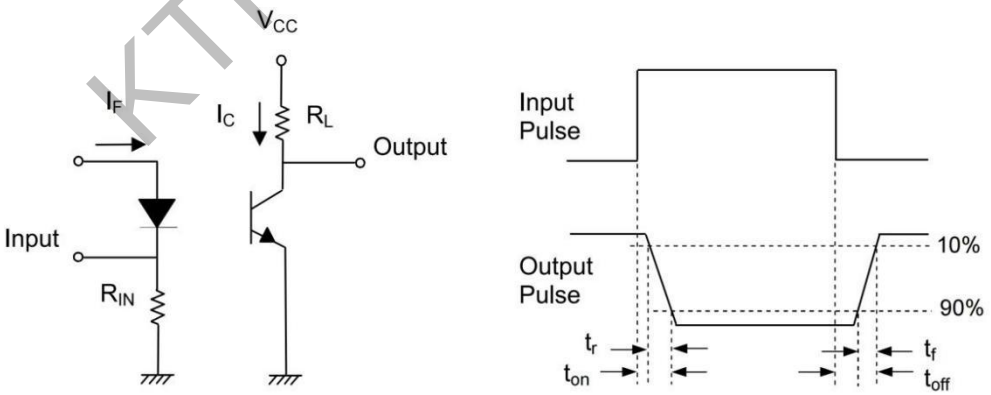


Figure 11. Switching Time Test Circuit & Waveforms

Order Information

Part Number

PC357-X-Y-W

Note :

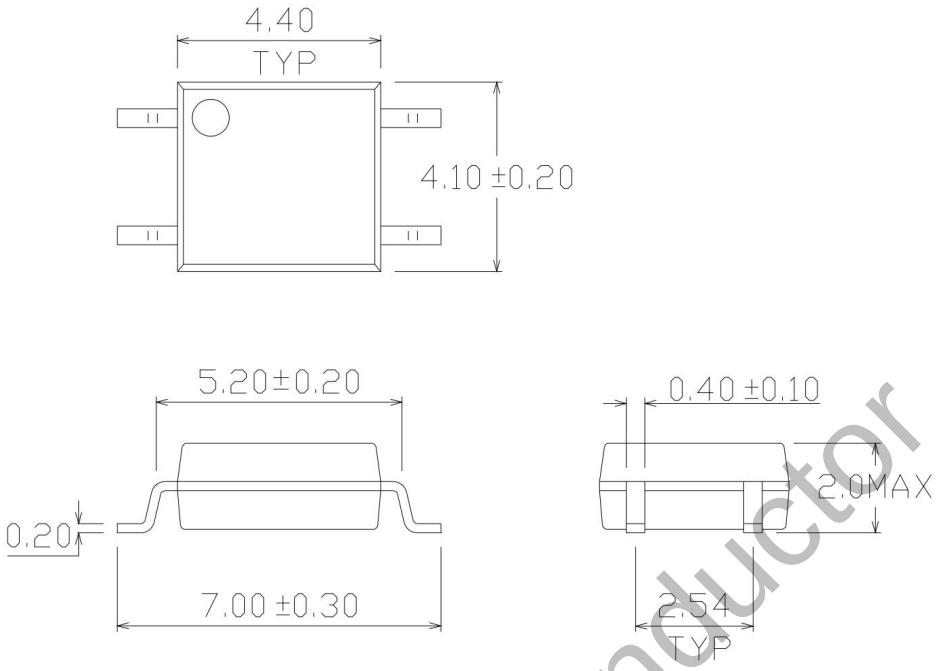
X = CTR Rank (A, B, C, D, E, F, H, I, J, K or none)

Y = Tape and reel option (TA, TB or none)

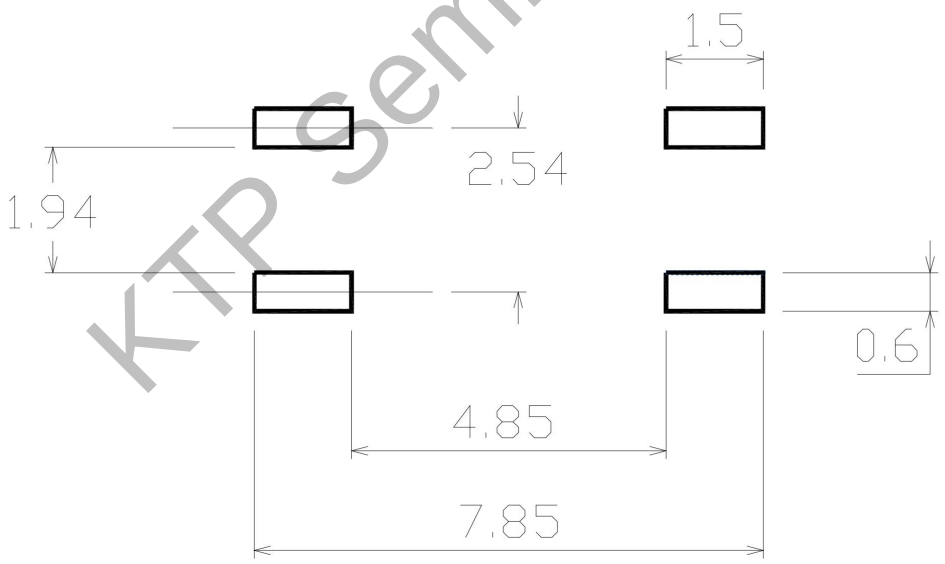
W = Lndicates internal identification code (with or none)

Option	Description
None	Standard SMD option
TA	TA Tape & reel option
TB	TB Tape & reel option

Package Dimension (Dimensions in mm)

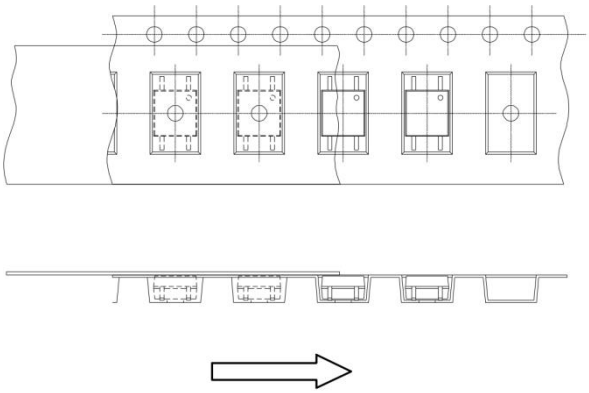


Recommended pad layout for surface mount leadform



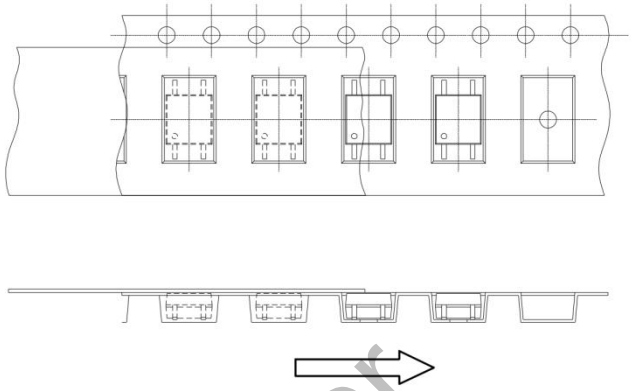
Tape & Reel Packing Specifications

Option TA



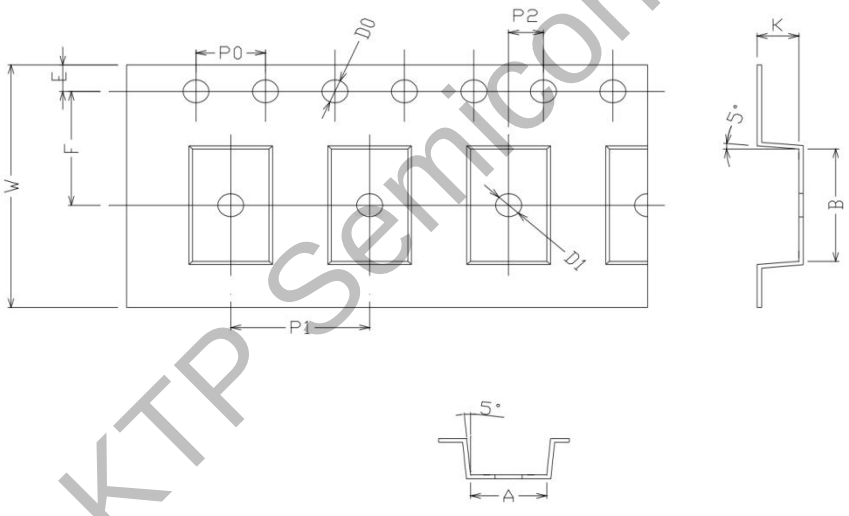
Direction of feed from reel

Option TB



Direction of feed from reel

Tape dimesions

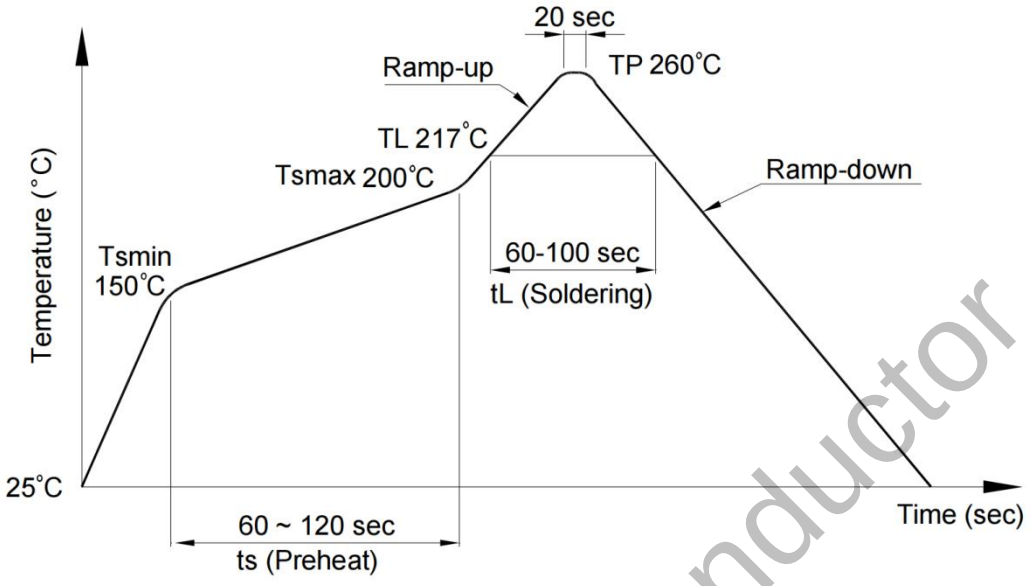


Dimension No.	A0	B0	D0	D1	E	F
Dimension (mm)	4.40 ± 0.10	7.40 ± 0.10	1.50 + 0.1/-0	1.50 ± 0.10	1.75± 0.10	7.50 ± 0.05
Dimension No.	Po	P1	P2	t	W	K0
Dimension (mm)	4.00 ± 0.15	8.00 ± 0.10	2.00 ± 0.10	0.25± 0.03	16.0 ± 0.2	2.40 ± 0.1

Precautions for Use

1. Soldering Condition

1.1 (A) Maximum Body Case Temperature Profile for evaluation of Reflow Profile



Note: Reference: IPC/JEDEC J-STD-020D

Preheat:

Temperature min (T_{smin})	150 °C
Temperature max (T_{smax})	200°C
Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max

Other:

Liquidus Temperature (T_L)	217 °C
Time above Liquidus Temperature (t_L)	60-100 sec
Peak Temperature (T_P)	260°C
Time within 5 °C of Actual Peak Temperature: T_P - 5°C	30 s
Ramp- Down Rate from Peak Temperature	6°C /second max.
Time 25°C to peak temperature	8 minutes max.