Abstract ：

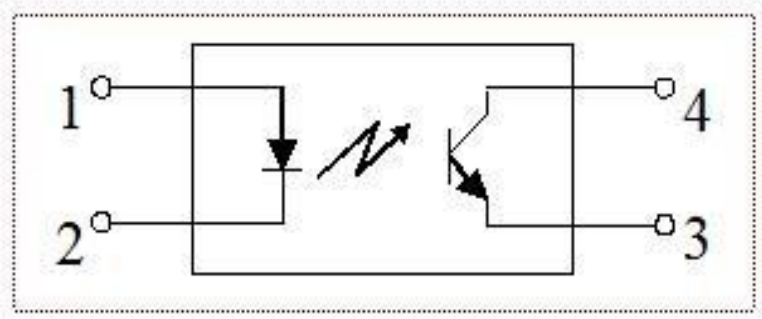
EL357 is a compact surface-mount optocoupler device designed for SMT (Surface Mount Technology) production. Composed of a Gallium Arsenide (GaAs) light-emitting diode and a phototransistor, this optoelectronic coupler features a smaller form factor compared to DIP (Dual In-line Package) packages, making it particularly suitable for high-density surface-mount applications such as programmable logic controllers (PLCs) and other space-constrained electronic systems.

Application Scope:

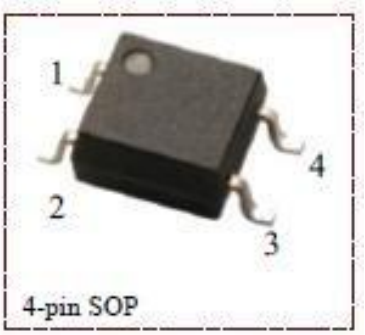
- Switching power supplies, smart meters
- Industrial automation and control systems, test & measurement equipment
- Office appliances (e.g., photocopiers, printers)
- Household appliances (e.g., air conditioners, fans, water heaters)

Structural Schematic Diagram and Package:

Structural Schematic



Package Outline



MaximumAbsolute Ratings(Ta=25℃)

Parameter		Symbol	Rating value	Unit
Input	Forward Current	I_F	50	mA
	Forward pulse current	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P	70	mW
	Junction Temperature	Tj	125	° C
Output	Collector Power Dissipation	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	Tj	125	° C
Total Power Dissipation		Ptot	200	mW
Isolation Voltage		Viso	5000	Vrms
Operating Temperature		Topr	-55~+110	° C
Storage Temperature		Tstg	-55~+125	° C
Soldering Temperature		Tsol	260	° C

Current-illumination characteristic(Ta=25℃)

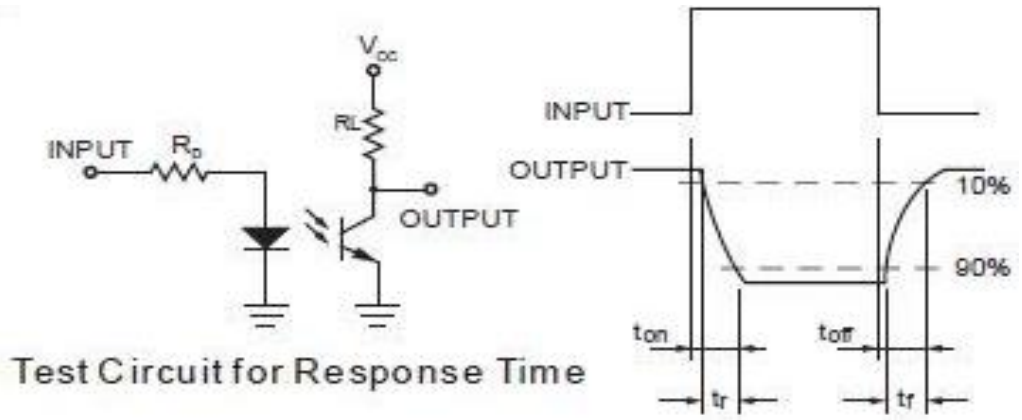
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=20mA		1.2	1.4	V
	Reverse Curren	I_R	V_R=5V	-	-	10	μA
	Terminal Capacitance	C_t	V=0, f=1kHz	-	30	250	pF
Output	Collector Dark Current	I_{CEO}	V_{CE}=70V	-	-	100	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=0.1mA, I_F=0	80	-	-	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	I_E=0.1mA, I_F=0	7	-	-	V
Transfer characteristic	Current Transfer Ratio	CTR	I_F=5mA, V_{CE}=5V	50	-	400	%
	Saturation Voltage Drop	$V_{CE(sat)}$	I_F=20mA, I_C=1mA	-	0.1	0.2	V
	Collector-Emitter Saturation Voltage	R_{ISO}	DC1000V, 40~60%R.H.	$1x10^{11}$	-	-	Ω
	Isolation Capacitance	Cf	V=0, f=1MHz	-	0.6	1.0	pF
	Collector-Emitter Capacitance	C_{CE}	V=0, f=1MHz		10		pF
	Cut-off Frequency	Fc	V_{CE}=5V, I_C=2mA, R_L=100Ω, -3dB	-	80	-	kHz
Switching time	Rise Time	Tr	V_{CE}=10V, I_C=2mA, R_L=100Ω	-	4	18	μs
	Fall time	Tf		-	3	18	μs

The classification of current transfer ratio (CTR) grades

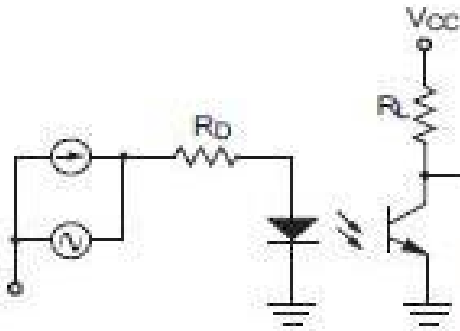
Current Transfer Ratio CTR=I_C/I_F x 100%

Part number	Grade Standard	I_C(mA)		CorrespondingCTR (%)	
		I_F = 5mA, V_{CE} = 5V, Ta = 25°C		I_F = 5mA, V_{CE} = 5V, Ta = 25°C	
		Min	Max	Min	Max
EL357	Blank	2.5	30.0	50	600
	A	4.0	8.0	80	160
	B	6.5	13.0	130	260
	C	10.0	20.0	200	400
	D	15.0	30.0	300	600
	A or B	4.0	13.0	80	160
	B or C	6.5	20.0	130	400
	C or D	10.0	30.0	200	600
	A.B or C	4.0	20.0	80	400
	B,C or D	6.5	30.0	130	600
	A,B,C or D	4.0	30.0	80	600

Test Circuit



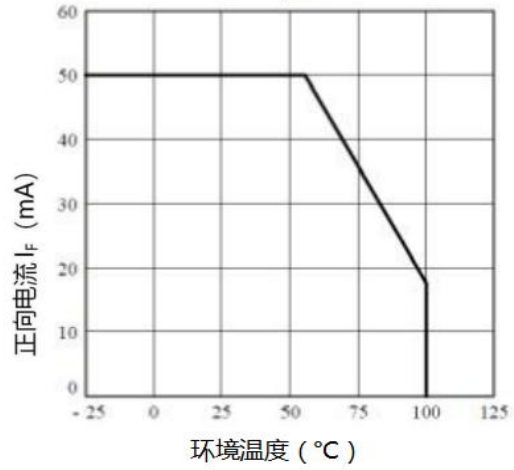
Test Circuit for Response Time



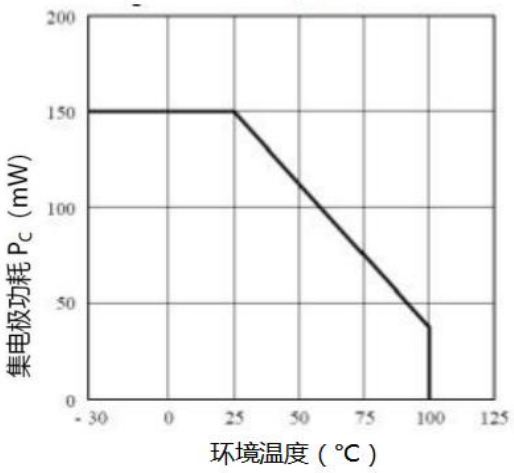
Test Circuit for Frequency Response

RATING AND CHARACTERISTIC CURVES (EL357)

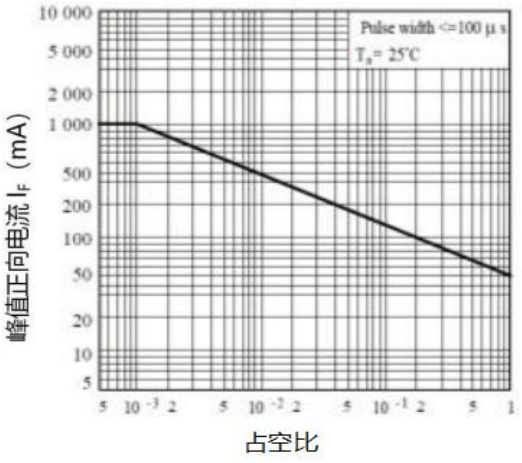
I_F-Ta



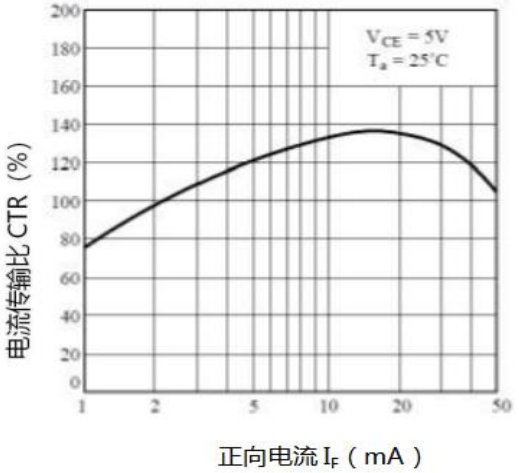
P_C-Ta



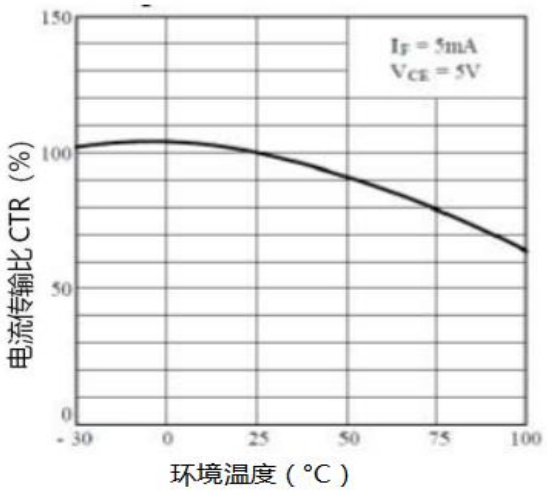
I_{FM}-D_R



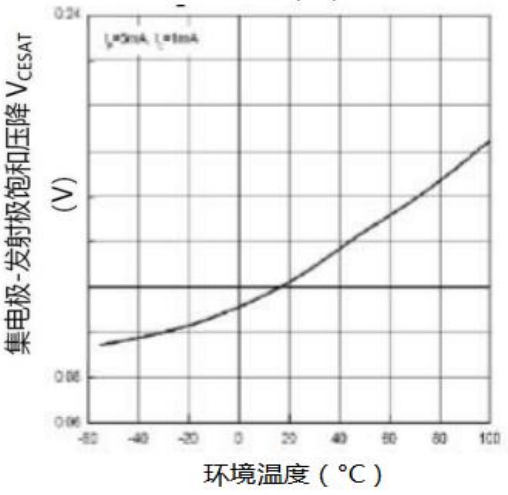
CTR- I_F



CTR-Ta

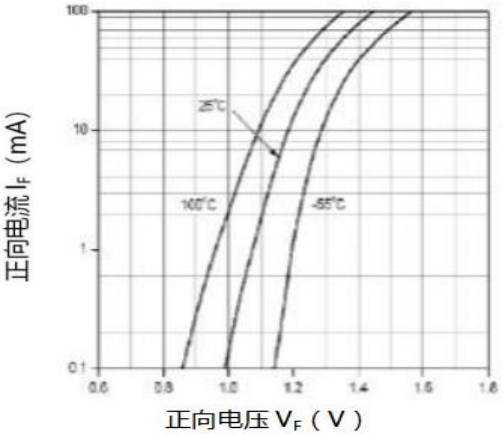


$V_{CE(SAT)}$-Ta

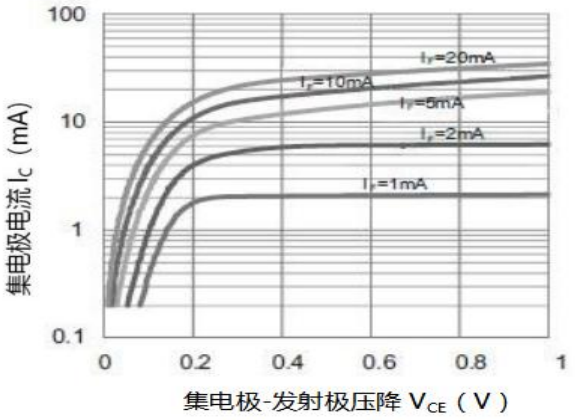


RATING AND CHARACTERISTIC CURVES (EL357)

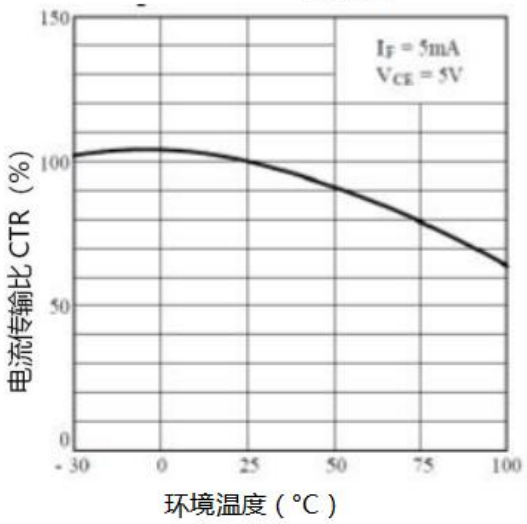
I_F-V_F



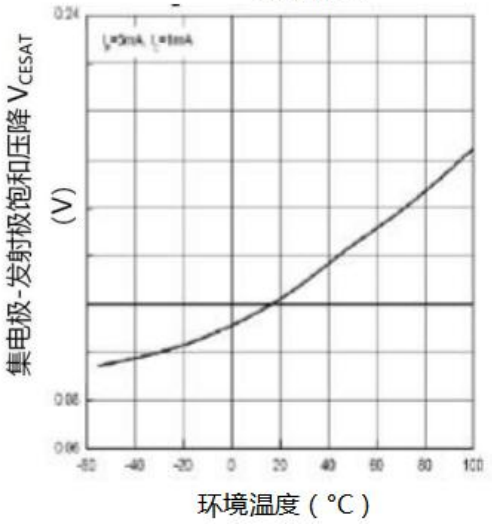
I_C-V_{CE}



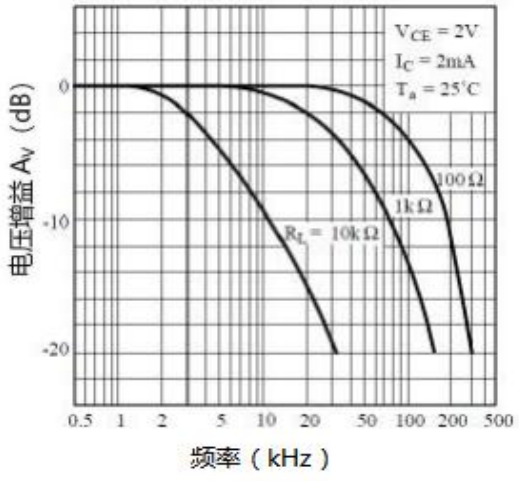
CTR-Ta



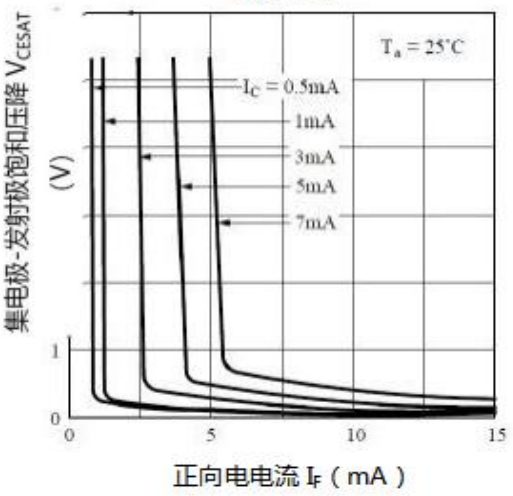
$V_{CE(SAT)}$-Ta



A_V-f

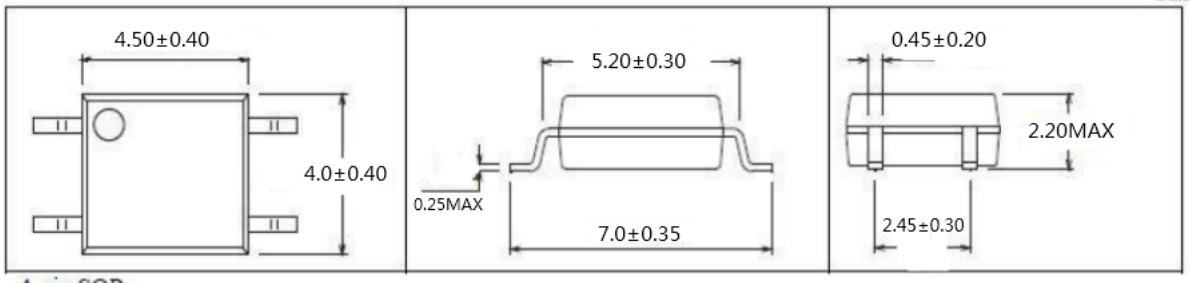


$V_{CE(SAT)}$-I_F



Outline Dimensions

Unit: mm



4-pin SOP