

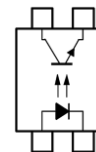
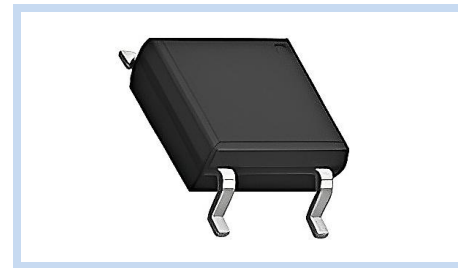
# Optoisolator Transistor 1CH 3.75Kiso DC SOP-4

OPI137DCB80S4

MERITEK

## FEATURE

- DC Input Response
- Current Transfer Ratio: 50%~600%
- Isolation Voltage: 3750 Vrms
- High CTR with Low Input Current
- Low Coupling Capacitance
- Application: Programmable Controller, Facsimiles, Telephones
- In Accordance with Safety Class UL1577 Standard



## MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Input Forward Current	$I_F$	60	mA
Input Peak Forward Current	$I_{FP}$	100 $\mu$ s Pulse, f=100Hz	A
Input Reverse Voltage	$V_R$	6	V
Input Power Dissipation	$P_I$	100	mW
Output Collector Current	$I_C$	50	mA
Output Power Dissipation	$P_C$	150	mW
Output Collector-Emitter Voltage	$V_{CEO}$	80	V
Output Emitter-Collector Voltage	$V_{ECO}$	6	V
Isolation Voltage	$V_{ISO}$	AC for 60sec, 40~60%R.H.	$V_{RMS}$
Power Dissipation	$P_T$	200	mW
Operating Temperature Range	$T_{Opr}$	-55~+100	$^{\circ}C$
Storage Temperature Range	$T_{Stg}$	-55~+125	$^{\circ}C$
Soldering Temperature	$T_{SOL}$	For 10 sec	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS

Input Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Forward Voltage	$I_F=10mA$	$V_F$	--	1.24	1.4	V
Reverse Current	$V_R=6V$	$I_R$	--	--	10	$\mu A$
Input Capacitance	$V=0, f=1KHz$	$C_{in}$	--	10	--	pF
Output Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Collector-Emitter Dark Current	$V_{CE}=20V, I_F=0$	$I_{CEO}$	--	--	100	nA
Collector-Emitter Breakdown Voltage	$I_C=0.1mA, I_F=0$	$BV_{CEO}$	80	--	--	V
Emitter-Collector Breakdown Voltage	$I_E=0.1mA, I_F=0$	$BV_{ECO}$	6	--	--	V
Coupled Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Current Transfer Ratio	$I_F=5mA, V_{CE}=5V$	CTR	50	--	600	%
			80	--	160	
			130	--	260	
			200	--	400	
			300	--	600	
Collector-Emitter Saturation Voltage	$I_F=20mA, I_C=1mA$	$V_{CE(SAT)}$	--	0.06	0.2	V
Isolation Resistance	$V_{IO}=500V_{DC}, 40\sim60\%R.H.$	$R_{ISO}$	$10^{12}$	$10^{14}$	--	$\Omega$
Isolation Capacitance	$V=0, f=1MHz$	$C_{ISO}$	--	0.4	1.0	pF
Cut-Off Frequency	$V_{CE}=2V, I_C=2mA, R_L=100\Omega, -3dB$	$f_c$	--	80	--	KHz
Rise Time	$V_{CE}=2V, I_C=2mA, R_L=100\Omega$	$t_r$	--	3	18	$\mu s$
Fall Time		$t_f$	--	4	18	

Note:  $T_A=25^{\circ}C$  unless otherwise noted.

# Optoisolator Transistor

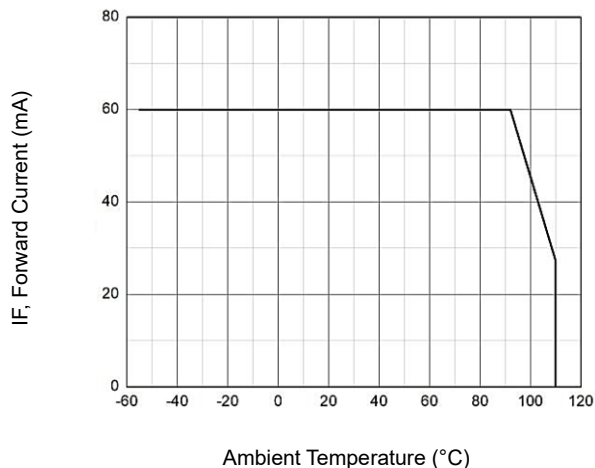
## 1CH 3.75Kiso DC SOP-4

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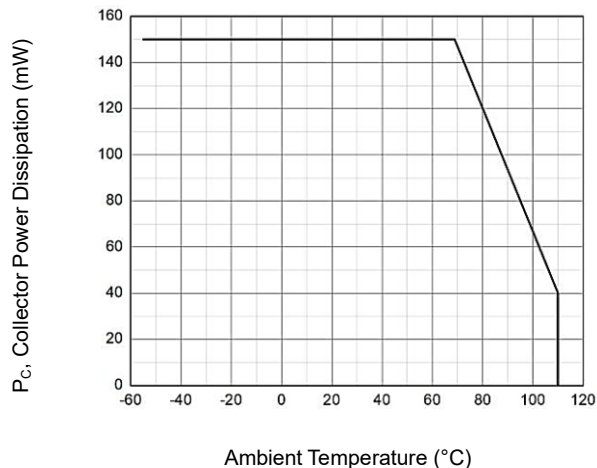
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### CHARACTERISTIC CURVES

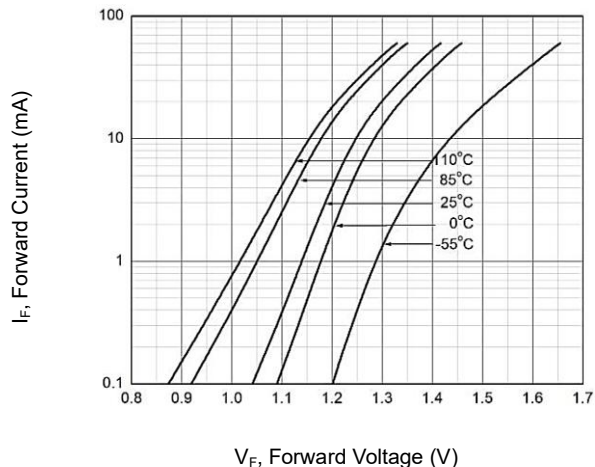
Forward Current vs. Temperature



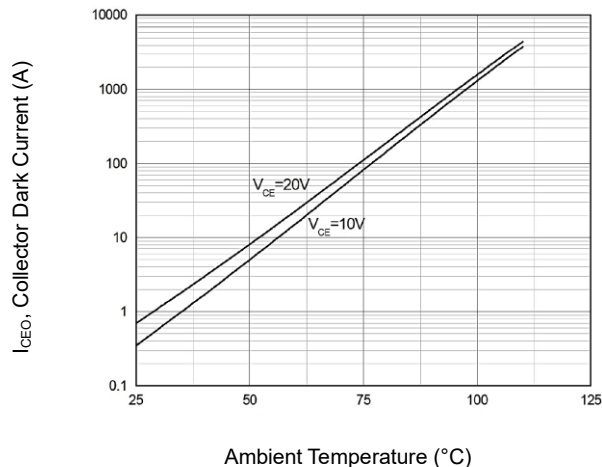
Collector Power Dissipation vs Temperature



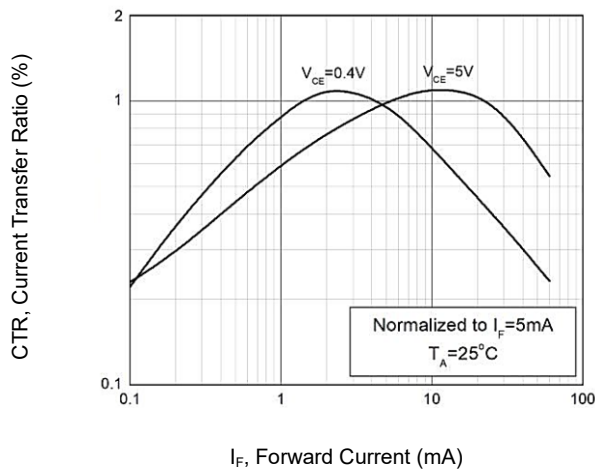
Forward Current vs. Forward Voltage



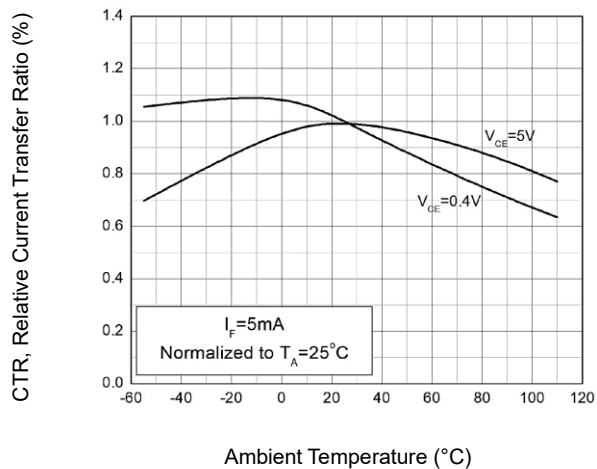
Collector Dark Current vs. Temperature



Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs Temperature



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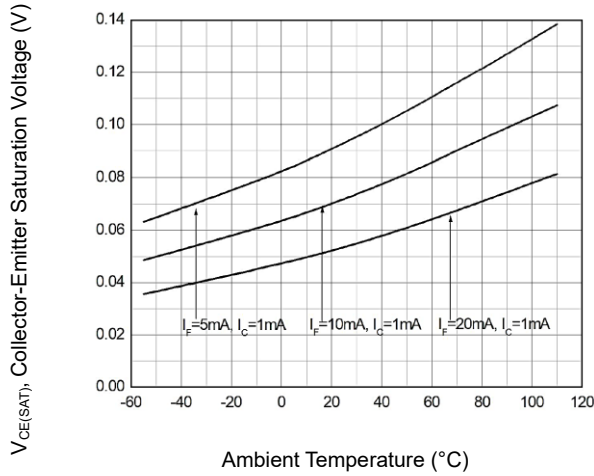
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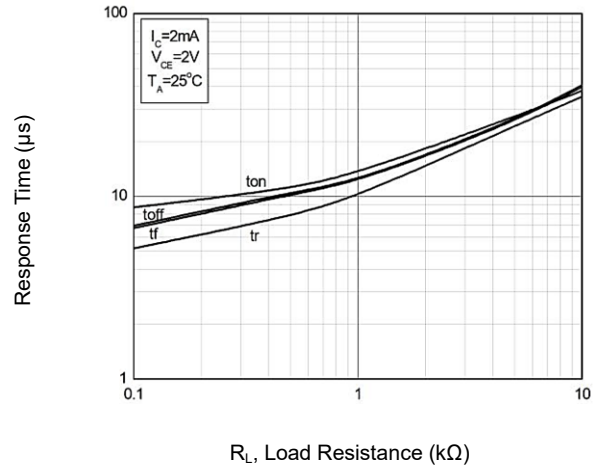
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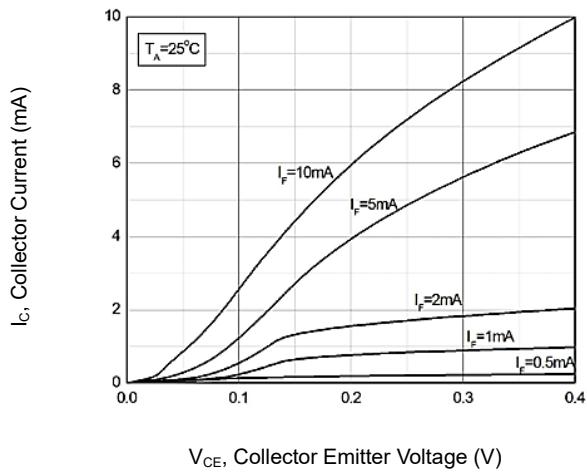
Collector-Emitter Saturation Voltage vs. Temperature



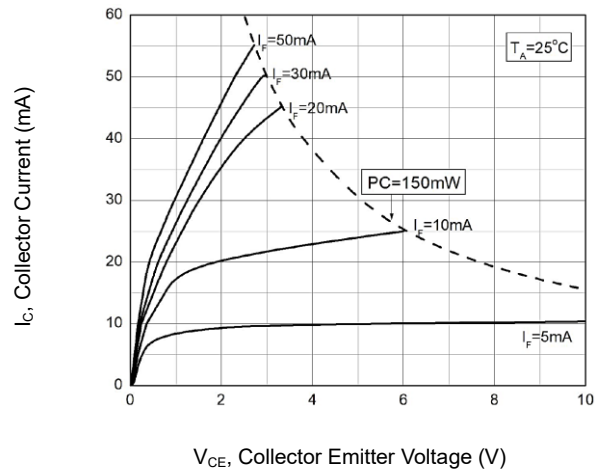
Response Time vs. Load Resistance



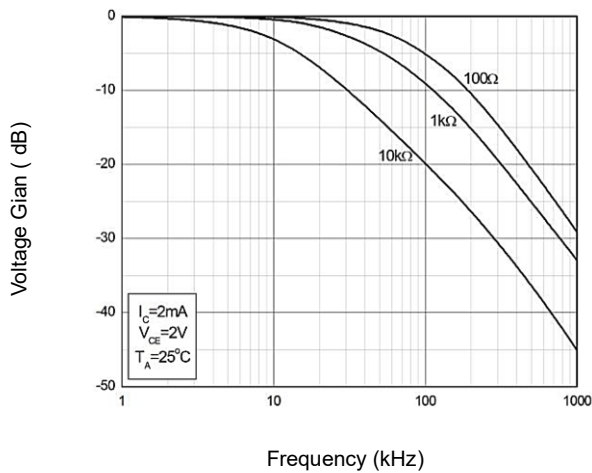
Collector Current vs. Collector Emitter Voltage



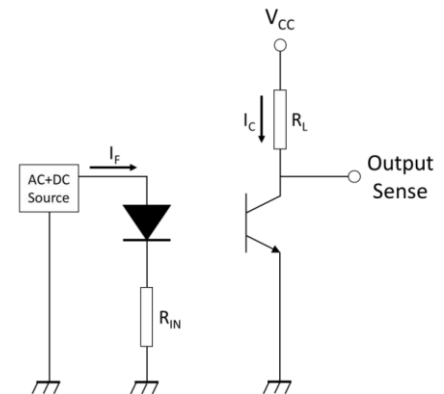
Collector Current vs. Collector Emitter Voltage



Frequency Response



Test Circuit of Response Time



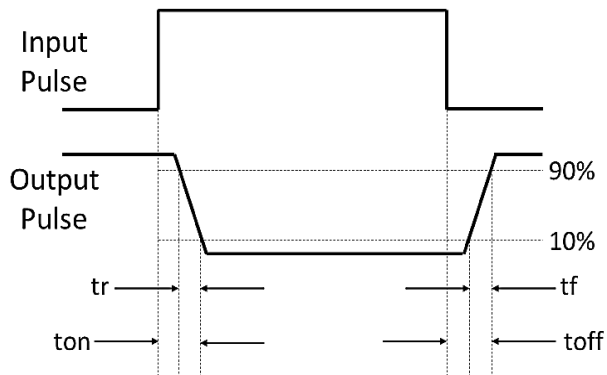
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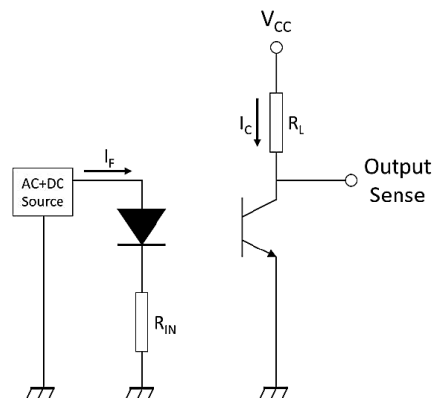
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## CHARACTERISTIC CURVES

Response Time Curve



Test Circuit of Frequency Response



## DIMENSIONS

Item	Min (mm)	Max (mm)
A1		0.10
A2	1.90	2.10
b		0.40
D	3.40	3.80
E	6.70	7.30
E1	4.20	4.60
e		2.54
L		0.50
X		0.90
X1		2.54
Y		1.10
Y1		7.40

Note:

1.LED Anode;2.LED Cathode; 3.Emitter; 4.Collector

