Optoisolator
1CH DC BJT SMD-4

OPI150DCB354S

MERITEK

FEATURE

- **Current Transfer Ratio: 80%~600%**
- **Isolation Voltage: 6000 Vrms**
- **High CTR with Low Input Current**
- **Low Coupling Capacitance**
- **Application: Programmable Controller, Facsimiles, AC Line Monitor, Power Supply Regulators, Telephone Line Interface**
- **In Accordance with Safety Class UL1577 Standard**

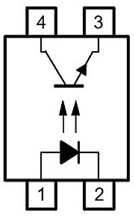
RoHS

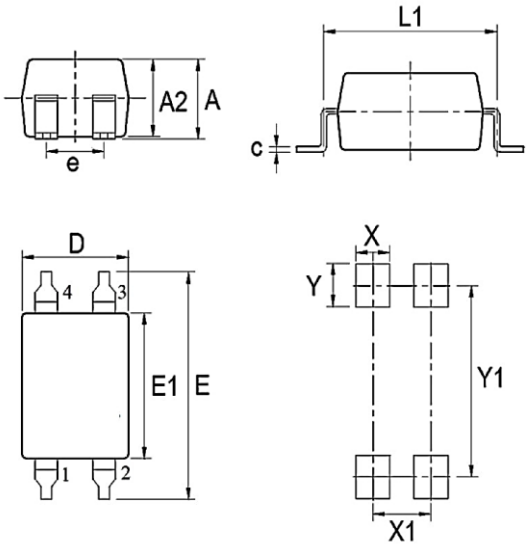
c UL us

MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Input Forward Current		I_F	50	mA
Input Peak Forward Current	Pulse width=0.1ms, duty=10%	I_{FP}	1	A
Input Reverse Voltage		V_R	6	V
Input Power Dissipation		P_I	70	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}	7	V
Isolation Voltage	AC for 60sec, RH40~60%	V_{ISO}	6000	V_{RMS}
Total Power Dissipation		P_T	200	mW
Operating Temperature Range		T_{Opr}	-55~+110	°C
Storage Temperature Range		T_{Stg}	-55~+125	°C
Soldering Temperature	For 10 sec	T_{SOL}	260	°C

DIMENSIONS

Item	Min (mm)	Max (mm)	Pin Layout
A	3.20	4.10	
A2	3.20	3.80	
c	0.25		
D	4.30	4.90	
E	9.86	10.46	
E1	6.20	6.80	
e	2.54		
L1	7.62		
X	1.50		
X1	2.54		1. LED Anode 3. Emitter 2. LED Cathode 4. Collector
Y	1.60		
Y1	9.22		

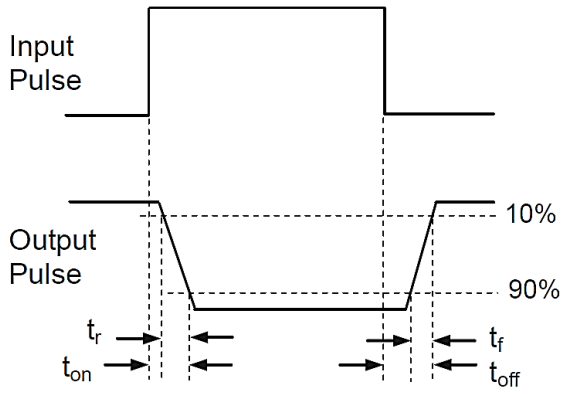


ELECTRICAL CHARACTERISTICS

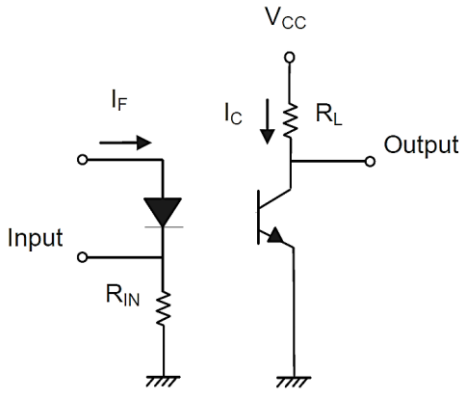
Input Characteristics		Conditions	Symbol	Min	Typ.	Max	Unit
Forward Voltage		I_F=20mA	V_F	--	1.2	1.4	V
Reverse Current		V_R=5V	I_R	--	--	10	μA
Input Capacitance		V=0, f=1KHz	C_{in}	--	30	250	pF
Output Characteristics		**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Collector-Emitter Dark Current		V_{CE}=20V, I_F=0mA	I_{CEO}	--	--	100	nA
Collector-Emitter Breakdown Voltage		I_C=0.1mA, I_F=0mA	BV_{CEO}	80	--	--	V
Emitter-Collector Breakdown Voltage		I_E=0.01mA, I_F=0mA	BV_{ECO}	6	--	--	V
Coupled Characteristics		**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Current Transfer Ratio	**OPI150DCB354S**	I_F=5mA, V_{CE}=5V	**CTR**	80	--	600	%
	OPI150DCB354SA			80	--	160	
	OPI150DCB354SB			130	--	260	
	OPI150DCB354SC			200	--	400	
	OPI150DCB354SD			300	--	600	
Collector-Emitter Saturation Voltage		I_F=20mA, I_C=1mA	$V_{CE(SAT)}$	--	0.1	0.2	V
Isolation Resistance		V_{IO}=500V_{DC}, RH=40~60%	R_{ISO}	$5x10^{10}$	10^{11}	--	Ω
Cut-off Frequency		V_{CE}=2V, I_C=2mA, R_L=100Ω, -3dB	f_C	--	80	--	kHz
Isolation Capacitance		V=0V, f=1MHz	C_{ISO}	--	0.6	1.0	pF
Rise Time		V_{CE}=2V, I_C=2mA, R_L=100Ω	t_r	--	4	18	μs
Fall Time		V_{CE}=2V, I_C=2mA, R_L=100Ω	t_f	--	3	18	μs

Note: T_A=25˚C unless otherwise noted.

Switching Time Waveform

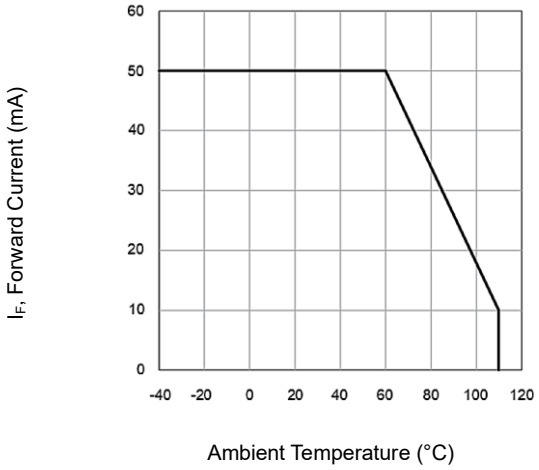


Switching Test Circuit

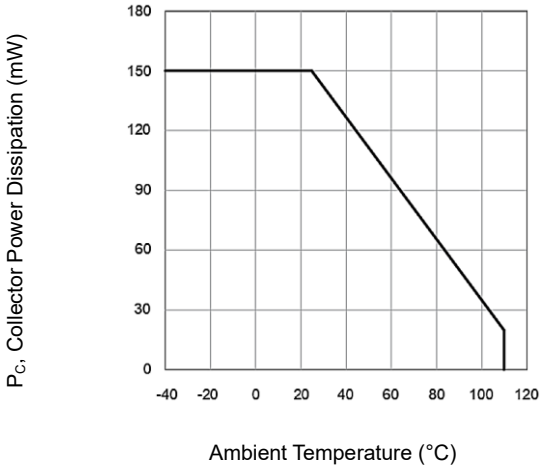


CHARACTERISTIC CURVES

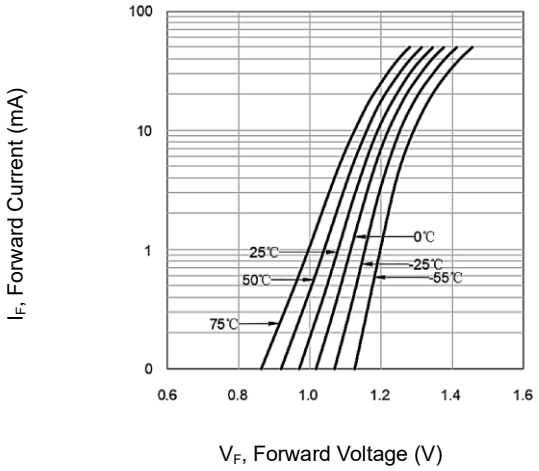
Forward Current vs. Temperature



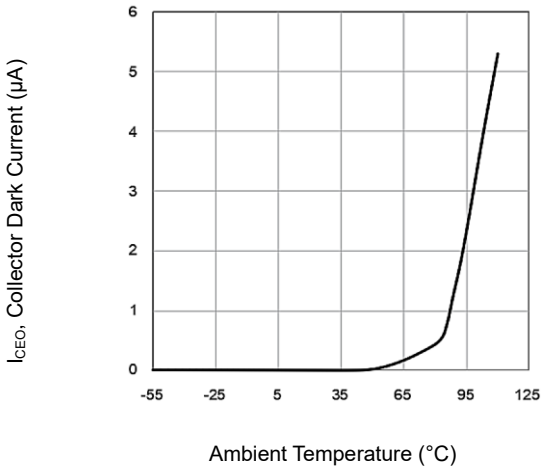
Collector Power Dissipation vs. Temperature



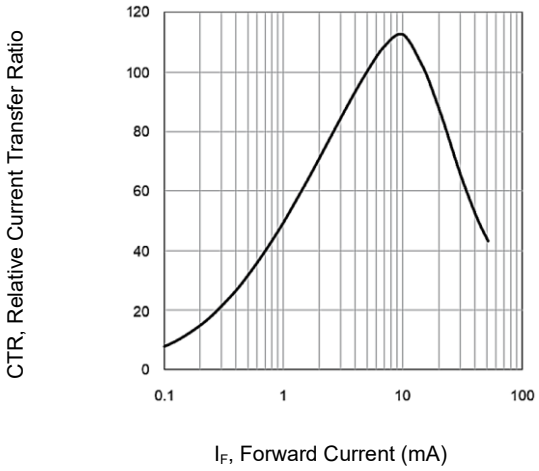
Forward Current vs. Forward Voltage



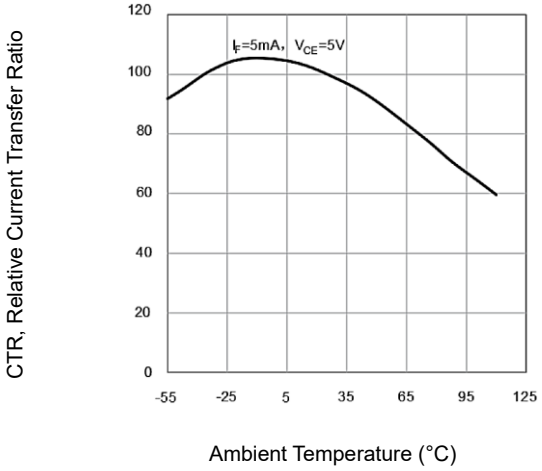
Collector Dark Current vs. Temperature



Current Transfer Ratio vs. Forward Current

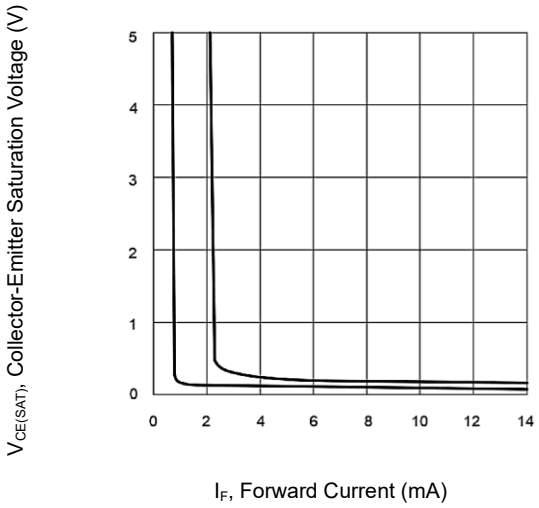


Relative Current Transfer Ratio vs. Temperature

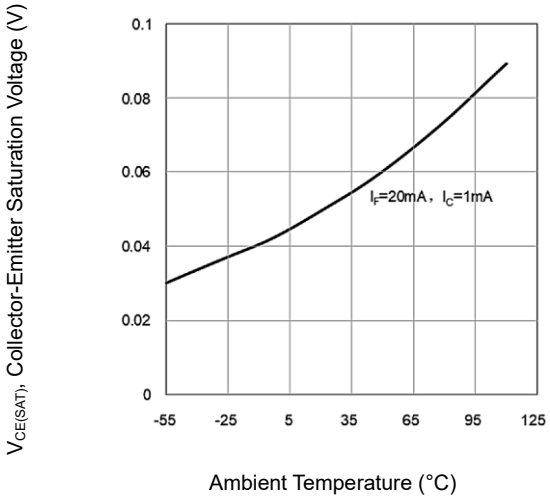


CHARACTERISTIC CURVES

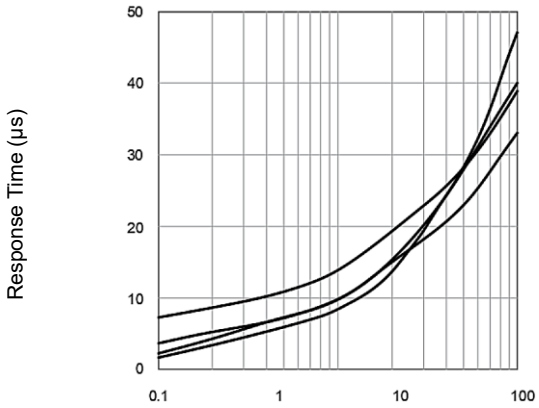
Collector-Emitter Saturation Voltage vs. Forward Current



Collector-Emitter Saturation Voltage vs. Temperature



Response Time vs. Load Resistance



Collector Current vs. Collector Emitter Voltage