

1	Anode (+)	}	Input Diode
2	Cathode (-)		
3	NC		
4	Emitter	}	Output npn Phototransistor
5	Collector		
6	Base		

Typical Electrical Characteristics

FCD850 / C / D FCD855 / C / D

Electrical Characteristics—Input Diode $T_A = 25^\circ\text{C}$

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
V_F	Forward Voltage		1.25	1.5	V	$I_F = 20\text{ mA}$
BV_R	Reverse Breakdown Voltage	3.0	5.0		V	$I_R = 10\text{ }\mu\text{A}$
C	Capacitance		150		pF	$V_R = 0\text{ V}$, $f = 1\text{ MHz}$

Electrical Characteristics—Output Transistor $T_A = 25^\circ\text{C}$

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
V_{CEO}	Collector-to-Emitter Voltage FCD850, FCD850C	30			V	$I_C = 100\text{ }\mu\text{A}$, $I_F = 0$
	FCD855, FCD855C	55			V	$I_C = 100\text{ }\mu\text{A}$, $I_F = 0$
V_{ECO}	Emitter-to-Collector Voltage	7.0			V	$I_E = 100\text{ }\mu\text{A}$, $I_F = 0$
V_{EBO}	Emitter-to-Base Voltage	8.0			V	$I_E = 100\text{ }\mu\text{A}$, $I_F = 0$
I_{CEO}	Collector-to-Emitter Leakage Current			100	nA	$V_{CE} = 10\text{ V}$, $I_F = 0$
h_{FE}	Forward Current Gain		7000			$V_{CE} = 5.0\text{ V}$, $I_C = 25\text{ mA}$
C_{cb}	Collector-to-Base Capacitance		25		pF	$V_{CB} = 10\text{ V}$

Electrical Characteristics—Coupled $T_A = 25^\circ\text{C}$

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
V_{IO}	Input-to-Output Voltage (Note 1) FCD850, FCD855 FCD850C, FCD855C FCD850D, FCD855D	1500 5000 6000			V_{rms} V_{pk} V_{pk}	
$V_{CE(sat)}$	Collector-to-Emitter Saturation Voltage			1.0	V	$I_C = 50\text{ mA}$, $I_F = 50\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $I_F = 10\text{ mA}$
I_C	Collector Output Current	10	150		mA	$V_{IO} = 500\text{ V}$, $V_{IO} = 0$, $f = 1.0\text{ MHz}$
R_{IO}	Input-to-Output Resistance		10^{11}		Ω	
C_{IO}	Input-to-Output Capacitance		1.5		pF	
t_r	Rise Time (Note 2)		15		μs	$I_C = 125\text{ mA}$, $V_{CC} = 13.5\text{ V}$, $R_L = 100\text{ }\Omega$
t_f	Fall Time (Note 2)		150		μs	$I_C = 125\text{ mA}$, $V_{CC} = 13.5\text{ V}$, $R_L = 100\text{ }\Omega$

Notes

1. Isolation voltage defined as minimum of 5 s continuous application
2. Rise time is defined as the time for the collector current to rise from 10% to 90% of peak value. Fall time is defined as the time required for the current to decrease from 90% to 10% of peak value.