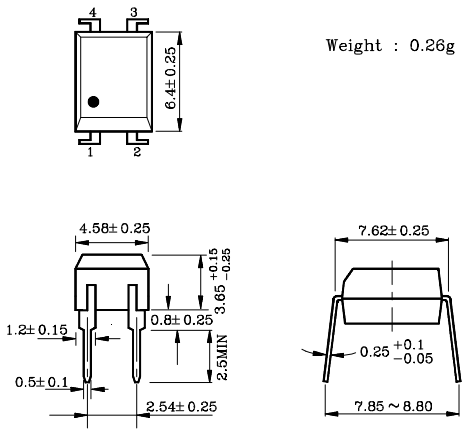
FEATURES

- Collector-Emitter Voltage : 55V Min.
- Current Transfer Ratio
  CTR : MIN. 50% at I_F=5mA, V_{CE}=5V.
- High Input Output Isolation Voltage : V_{ISO}=5000V_{rms}
  - UL Recognized : E177885
  - VDE Recognized : 105551
  - SEMKO Recognized : 9822251/01-02
- Compact Dual-In-Line Package.
- KPC317 : 1-Channel Type.

APPLICATIONS

- Computer terminals.
- Switching Mode Power Supply.
- System appliances, Measuring instruments.
- Registers, Copiers, Automatic vending machines.
- Electric home appliances such as fan heaters, etc.
- Medical instruments, physical and chemical equipment.
- Signal transmission between circuits of different potentials and impedances.



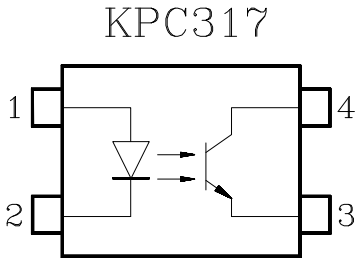
KPC117/KPC317

CURRENT TRANSFER RATIO

TYPE	CLASSIFICATION *1	CURRENT TRANSFER RATIO (%) (I_C/I_F) I_F=5mA, V_{CE}=5V Ta=25℃ MIN.	MAX.	MARKING OF CLASSIFICATION
KPC317	(None)	50	600	BLANK, Y, Y▪, G, G▪, B, B▪, GB
	Rank Y	50	150	Y, Y▪
	Rank GRL	100	200	G
	Rank GRH	150	300	G▪
	Rank GR	100	300	G, G▪
	Rank YG	50	300	Y, Y▪, G, G▪
	Rank BL	200	600	B, B▪
	Rank GB	100	600	G, G▪, B, B▪, GB

Note : Application type name for certification test, please use standard product type name, i.e. KPC317(GB) : KPC317

PIN CONFIGURATIONS (TOP VIEW)



1: ANODE
2: CATHODE
3: EMITTER
4: COLLECTOR

Isolation Voltage : 5000Vrms (Min.)

- VDE Approved : DIN VDE0884/8.87, Certificate No. 105551

- Creepage Distance : 6.4mm (Min.)
  Clearance : 6.4mm (Min.)
  Insulation Thickness : 0.4mm (Min.)

MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	60	mA
	Forward Current Derating	ΔI_F/℃	-0.7 (Ta≧39℃)	mA/℃
	Pulse Forward Current	I_{FP}	1 (100μ pulse, 100pps)	A
	Power Dissipation	P_D	100	mW
	Power Dissipation Derating	ΔP_D/℃	-1.0	mW/℃
	Reverse Voltage	V_R	5	V
	Junction Temperature	T_j	125	℃
DETECTOR	Collector-Emitter Voltage	V_{CEO}	55	V
	Emitter-Collector Voltage	V_{ECO}	7	V
	Collector Current	I_C	50	mA
	Collector Power Dissipation	P_C	150	mW
	Collector Power Dissipation Derating (Ta≧25℃)	ΔP_C/℃	-1.5	mW/℃
	Junction Temperature	T_j	125	℃
Storage Temperature Range		T_{stg}	-55~150	℃
Operating Temperature Range		T_{opr}	-55~100	℃
Lead Soldering Temperature		T_{sold}	260 (10sec.)	℃
Total Package Power Dissipation		P_T	250	mW
Total Package Power Dissipation Derating (Ta≧25℃)		ΔP_T/℃	-2.5	mW/℃
Isolation Voltage		BV_S	5000 (AC, 1 min., RH≦60%)	V_{rms}

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	I_F=10mA	1.0	1.15	1.3	V
	Reverse Current	I_R	V_R=5V	-	-	10	μA
	Capacitance	C_T	V=0, f=1MHz	-	30	-	pF
DETECTOR	Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=0.5mA	55	-	-	V
	Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	I_E=0.1mA	7	-	-	V
	Collector Dark Current	I_{CEO}	V_{CE}=24V	-	10	100	nA
			V_{CE}=24V, Ta=85℃	-	2	50	μA
	Capacitance (Collector to Emitter)	C_{CE}	V=0, f=1MHz	-	10	-	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Current Transfer Ratio	I_C/I_F	I_F=5mA, V_{CE}=5V	50	-	600	%
		Rank GB	100	-	600	
Saturated CTR	I_C/I_F (sat)	I_F=1mA, V_{CE}=0.4V	-	60	-	%
		Rank GB	30	-	-	
Collector-Emitter Saturation Voltage	V_{CE}(sat)	I_C=2.4mA, I_F=8mA	-	-	0.4	V
		I_C=0.2mA, I_F=1mA	-	0.2	-	
		Rank GB	-	-	0.4	

ISOLATION CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance (Input to Output)	C_S	V_S=0, f=1MHz	-	0.8	-	pF
Isolation Resistance	R_S	V_S=500V	5×10^{10}	10^{14}	-	Ω
Isolation Voltage	BV_S	AC, 1 minute	5000	-	-	Vrms
		AC, 1 second	-	10000	-	
		DC, 1 minute	-	10000	-	Vdc

SWITCHING CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Rise Time	t_r	V_{CC}=10V I_C=2mA R_L=100Ω	-	2	-	μs
Fall Time	t_f		-	3	-	
Turn-on Time	t_{on}		-	3	-	
Turn-off Time	t_{OFF}		-	3	-	
Turn-on Time	t_{on}	R_L=1.9kΩ (Fig.1) V_{CC}=5V, I_F=16mA	-	2	-	μs
Storage Time	t_S		-	15	-	
Turn-off Time	t_{OFF}		-	25	-	

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{CC}	-	5	24	V
Forward Current	I_F	-	16	20	mA
Collector Current	I_C	-	1	10	mA
Operating Temperature	T_{OPR}	-25	-	85	℃

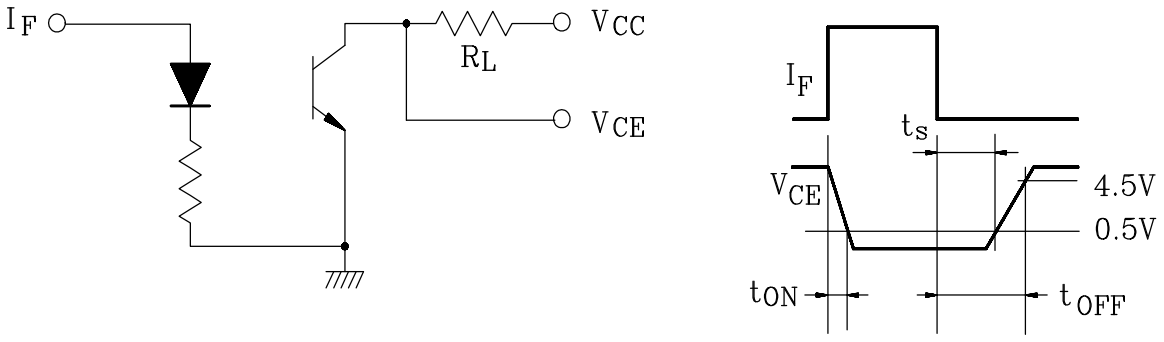
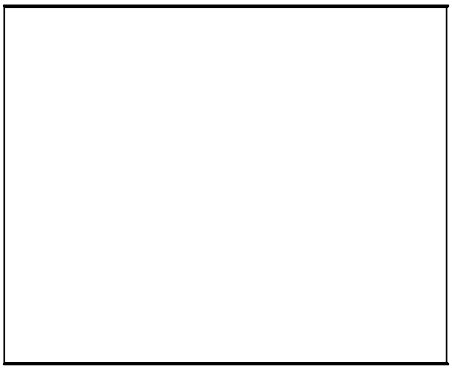
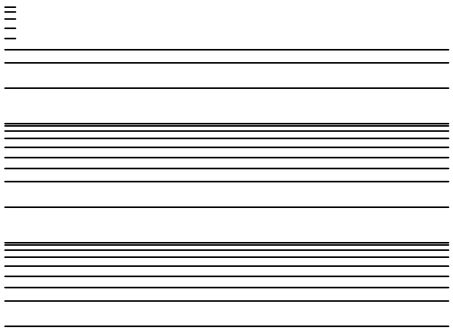
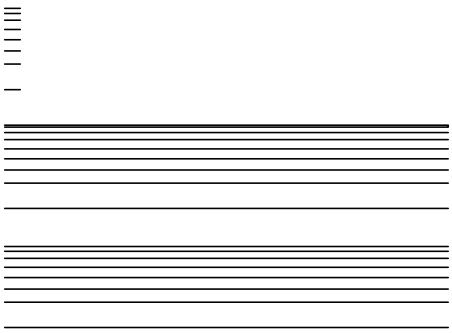


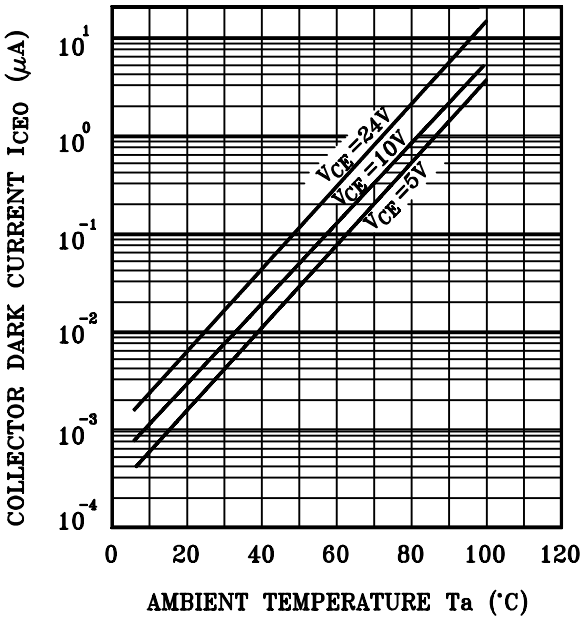
Fig.1 Switching Time Test Circuit



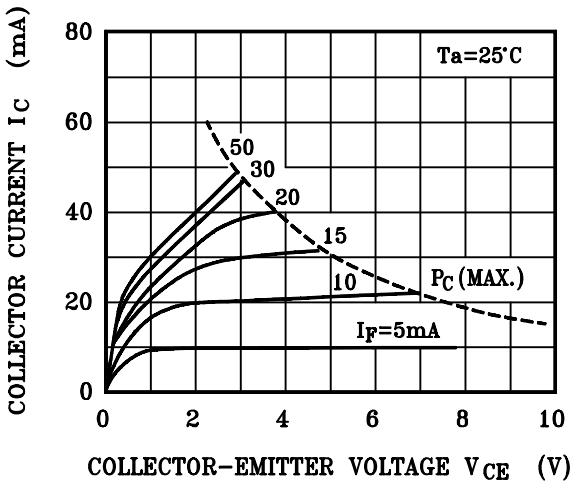




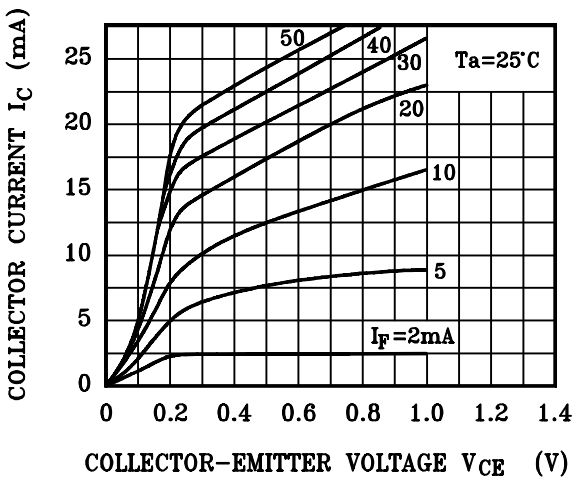
I_{CEO} – Ta



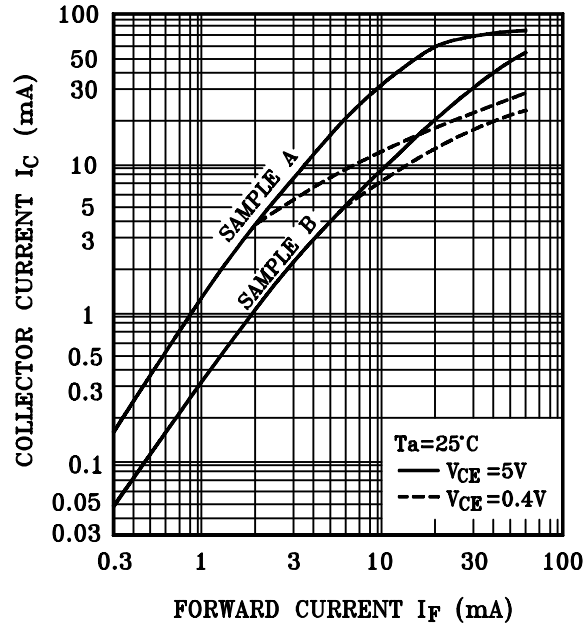
I_C – V_{CE}



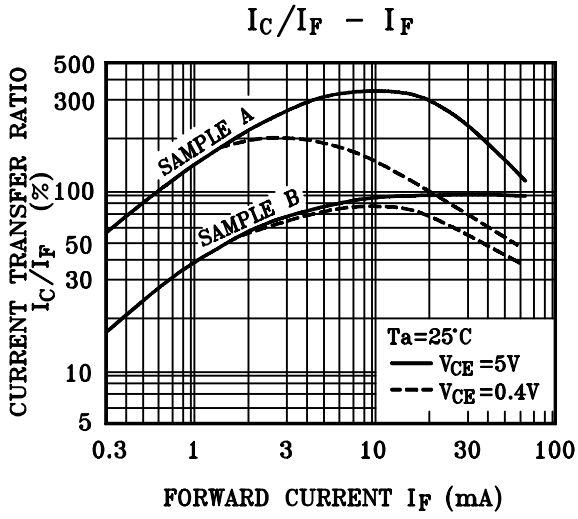
I_C – V_{CE}



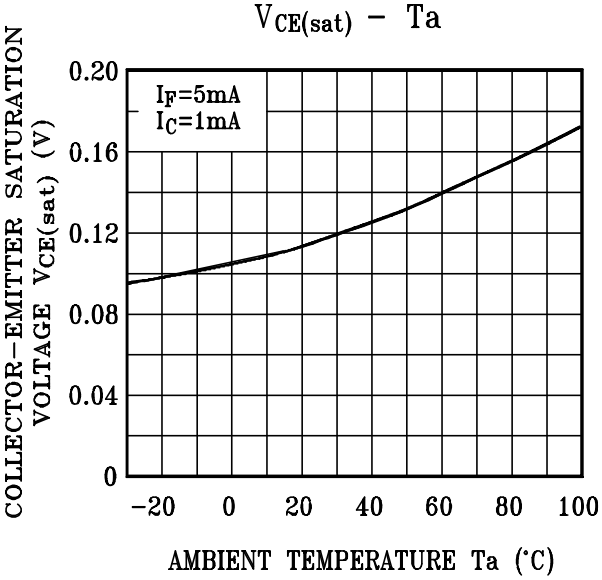
I_C – I_F



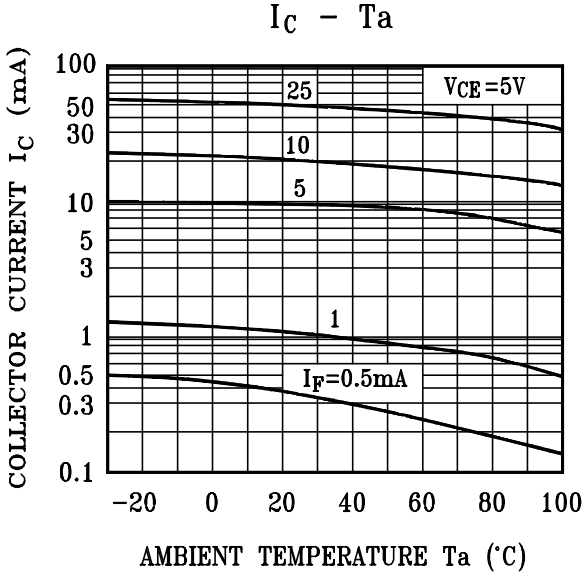
I_C/I_F – I_F



$V_{CE(sat)}$ – Ta



I_C – Ta



R_L–SWITCHING TIME