

# PHOTOCOUPLER

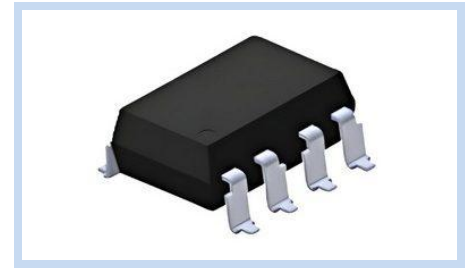
## 80V 0.2W 8 Pin SMT

MKP3020SATL

MERITEK

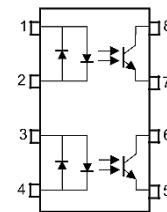
### FEATURE

- AC Input
- Compact Dual in Line Package
- High Isolation Voltage Between Input and Output
- Application: Limit Switches, Programmable Controllers, Telephone Exchangers, Sensors, etc.



### MECHANICAL DATA

- Case: 8 Pin SMT Package
- Terminals: Solderable per MIL-STD-750, Method 2026

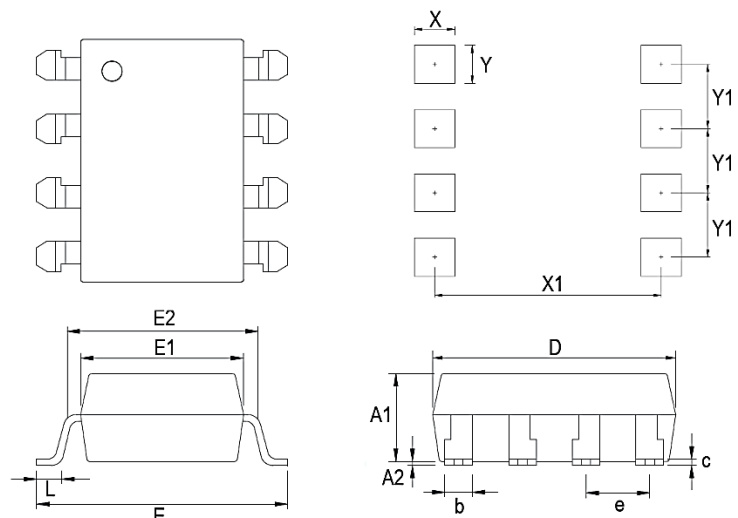


### MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	
Input Forward Current	$I_F$	$\pm 50$	mA	
Input Pulse Forward Current	$I_{FP}$	$\pm 1$	A	
Input Power Dissipation	$P_D$	70	mW	
Output Collector Current	$I_F$	50	mA	
Output Power Dissipation	$P_C$	150	mW	
Output Collector-Emitter Voltage	$V_{CEO}$	80	A	
Output Emitter-Collector Voltage	$V_{ECO}$	6	V	
Isolation Voltage	$V_{ISO}$	5000	$V_{RMS}$	
Total Power Dissipation	$P_T$	200	mW	
Operating Temperature Range	$T_{OPR}$	-55~110	$^{\circ}C$	
Storage Temperature Range	$T_{STG}$	-55~125	$^{\circ}C$	
Soldering temperature	For 10 sec	$T_{SOL}$	260	$^{\circ}C$

### DIMENSIONS

Item	Min (mm)	Max (mm)
A1	3.30	3.70
A2	1.10	0.90
b	1.00	1.40
c	0.05	0.45
D	9.48	9.88
E	9.60	10.40
E1	6.30	6.70
E2	7.42	7.82
e	2.54	
L	0.80	1.20
X	1.60	
X1	9.00	
Y	1.50	
Y1	2.54	

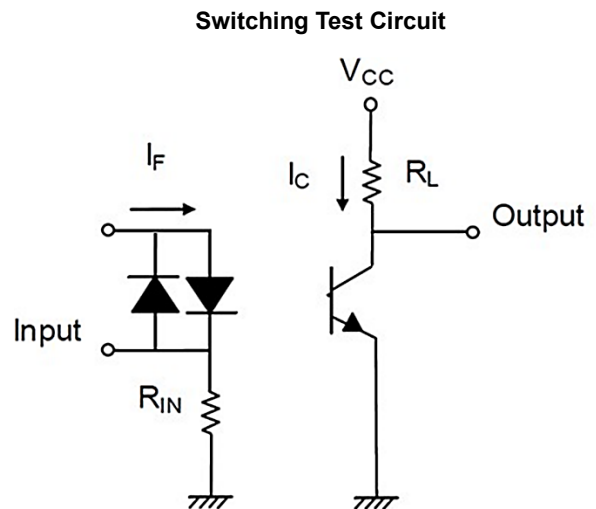
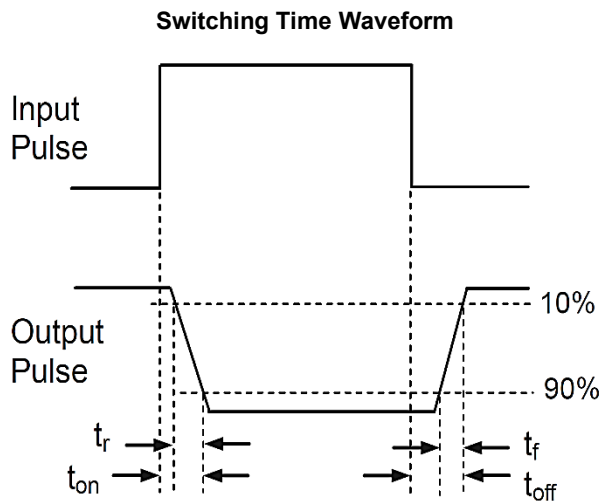


**ELECTRICAL CHARACTERISTICS**

Input Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Forward Voltage	$I_F = \pm 20\text{mA}$	$V_F$	--	1.2	1.4	V
Peak Forward Voltage	$I_F = \pm 0.5\text{A}$	$V_{FM}$	--	--	3.5	V
Input Capacitance	$V=0, f=1\text{kHz}$	$C_{in}$	--	30	--	pF
Output Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Collector-Emitter Dark Current	$V_{CE}=20\text{V}$	$I_{CEO}$	--	--	100	nA
Collector-Emitter Breakdown Voltage	$I_C=0.1\text{A}$	$BV_{CEO}$	80	--	--	V
Emitter-Collector Breakdown Voltage	$I_E=0.1\text{A}$	$BV_{CBO}$	6	--	--	V
Transfer Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Current Transfer Ratio	$I_F = \pm 1\text{mA}, V_{CE}=5\text{V}$	CTR	60	--	600	%
Collector-Emitter Saturation Voltage	$I_F = \pm 20\text{mA}, I_C=1\text{mA}$	$V_{CE(SAT)}$	--	0.1	0.3	V
Isolation resistance	$V_{IO}=500\text{V}_{DC}$	$R_{ISO}$	$5 \times 10^{10}$	$10^{11}$	--	$\Omega$
Cut-off frequency	$V_{CC}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega$	fc	--	80	--	kHz
Floating Capacitance	$V=0, f=1\text{MHz}$	$C_f$	--	0.6	1.0	pF
Rise Time	$V_{CE}=2\text{V}, I_C=2\text{mA}, R_L=100\Omega$	$t_r$	--	5	20	$\mu\text{s}$
Fall Time		$t_f$	--	4	20	

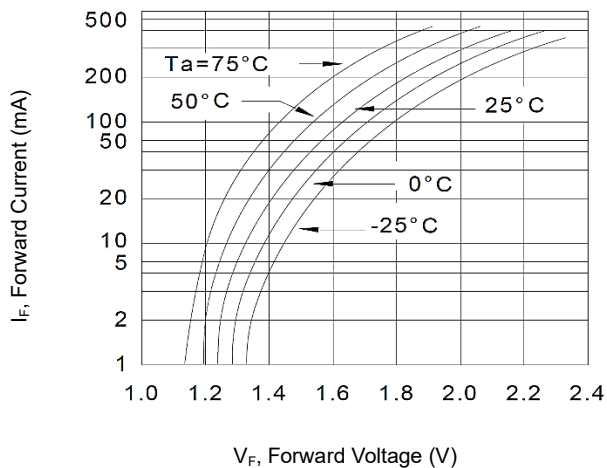
Note:

- $T_A=25^\circ\text{C}$  unless otherwise noted.
- Isolation Voltage: AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1,2 are shorted together, and pins 3,4 are shorted together.

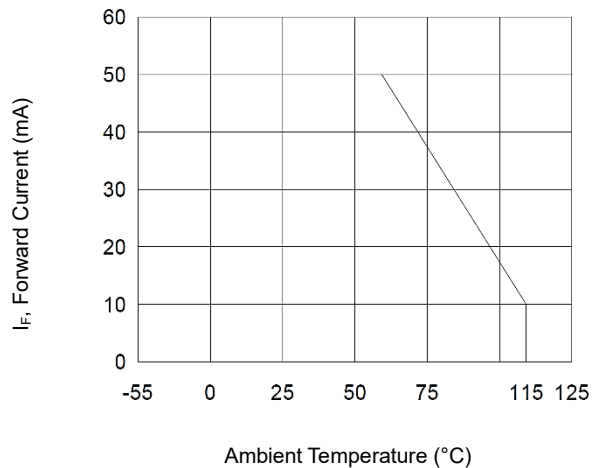


**CHARACTERISTIC CURVES**

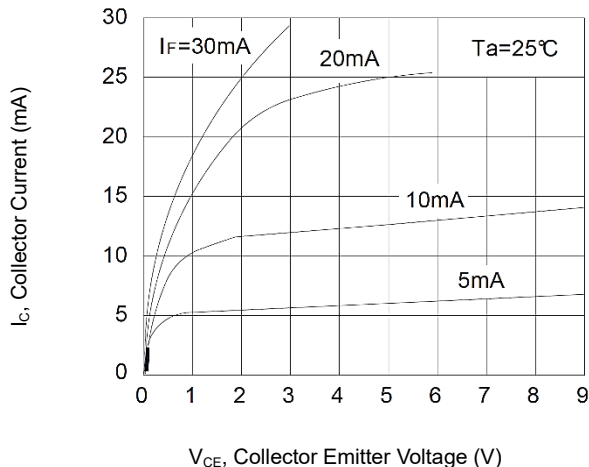
**Forward Current vs. Forward Voltage**



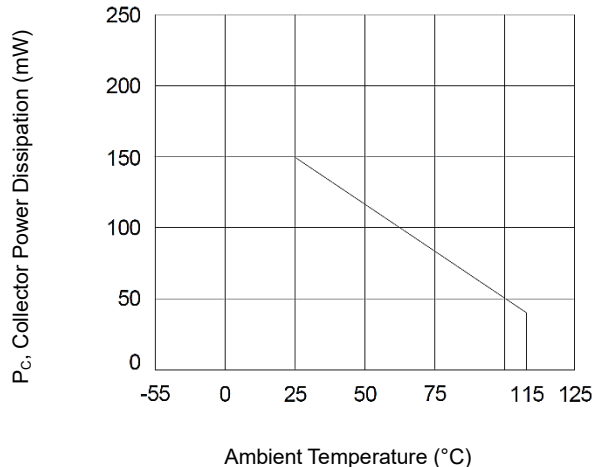
**Forward Current vs. Temperature**



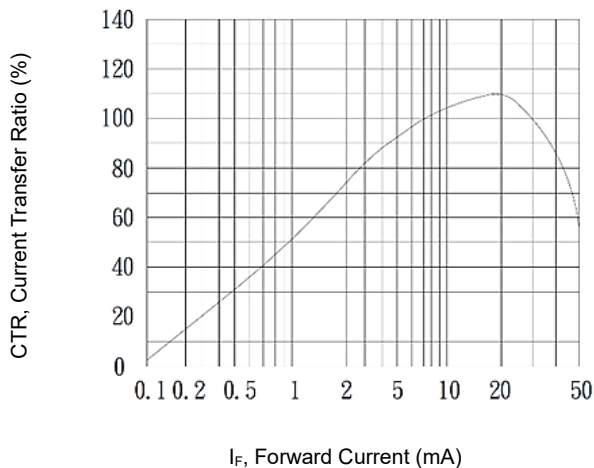
**Collector Current vs. Collector Emitter Voltage**



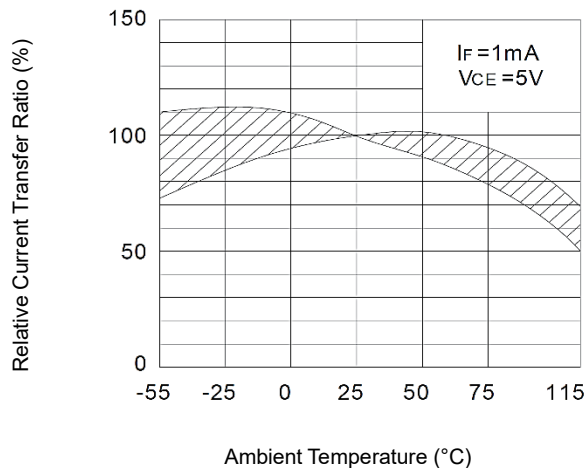
**Collector Power Dissipation**



**Current Transfer Ratio vs. Forward Current**

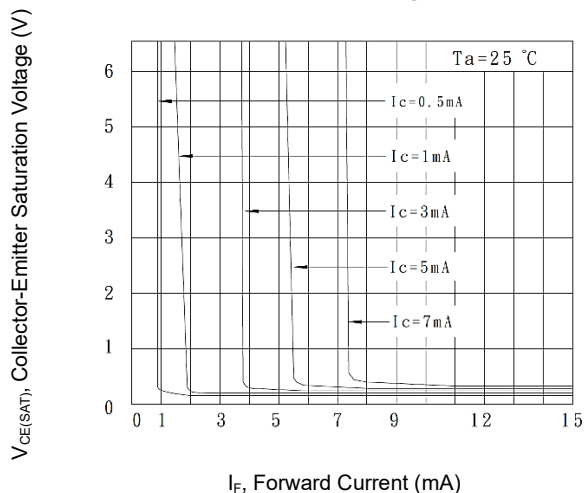


**Relative Current Transfer Ratio**

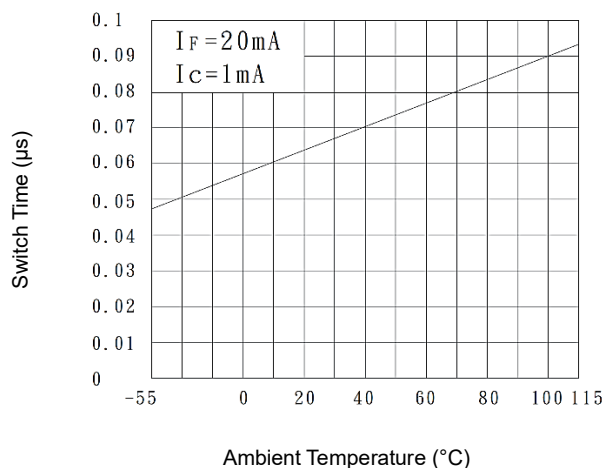


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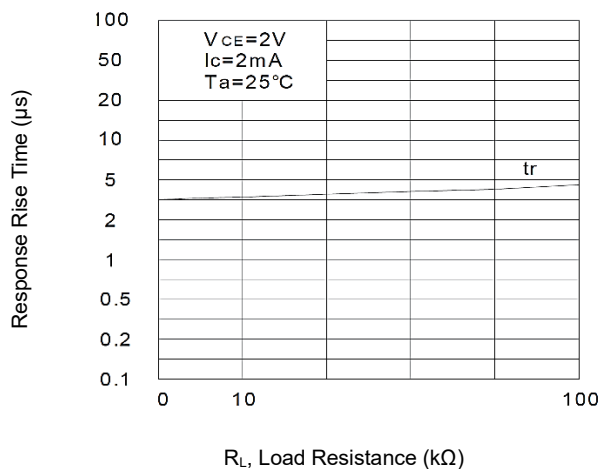
Collector-Emitter Saturation Voltage vs. Forward Current



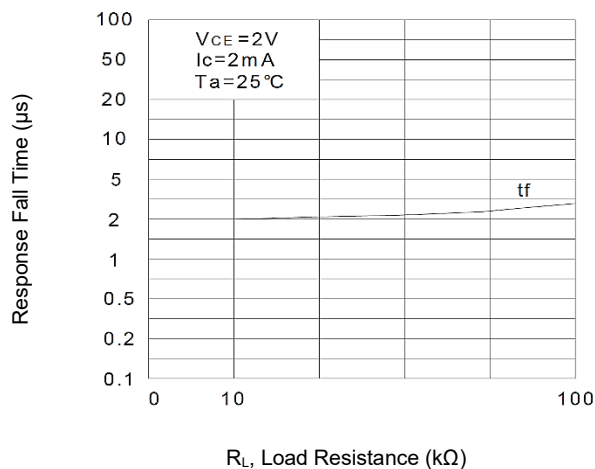
Collector-Emitter Saturation Voltage vs. Temperature



Response Rise Time vs. Load Resistance



Response Fall Time vs. Load Resistance



Collector Dark Current vs. Temperature

