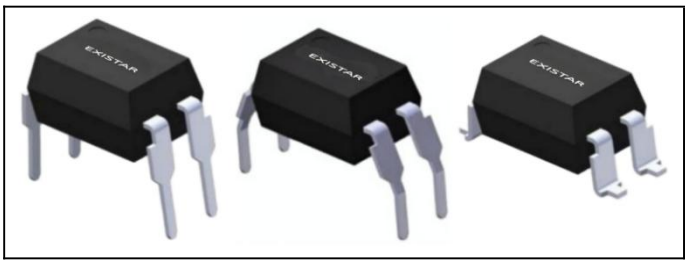
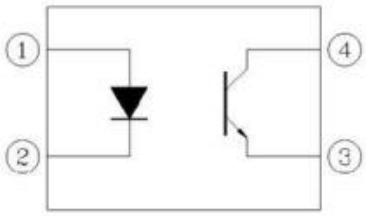
PHOTO TRANSISTOR



Product features

- Halogens free
  (Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)
- Current transfer ratio
  (CTR: 50~600% at IF =5mA, VCE =5V)
- High isolation voltage between input and output
  (Viso=5000 V rms)
- Creepage distance>7.62mm
- Operating temperature up to + 110℃
- Compliance with EU REACH
- Pb free and RoHS compliant.

Schematic



PinConfiguration
1. Anode
2. Cathode
3. Emitter
4. Collector

Product Description

- EX817X series of devices each consist of an infrared emitting diodes , optically coupled to a phototransistor detector.
- They are packaged in a 4-pin DIP package and available in wide-lead spacing and SMD option.

Product Applications

- System appliances, measuring instruments
- Telecommunication equipments
- Home appliances, such as fan heaters, etc.
- Signal transmission between circuits of different potentials and impedances
- Programmable controllers

Ordering Information

Part Number	Package	Packing quantity
EX817X	直插DIP	100 / Tube
	贴片SMD	2000 / Reel

Electrical-Optical characteristics

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rated Value	Unit
Input	Forward current	I_F	60	mA
	Peak forward current(1us pulse)	I_{FP}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	100	mW
	Derating factor (above Ta=90°C)		2.9	mW/℃
Output	Power dissipation	P_c	150	mW
	Derating factor (above Ta = 70°C)		5.8	mW/℃
	Collector current	I_C	50	mA
	Collector and emitter Voltage	V_{CEO}	60	V
	Emitter and Collector Voltage	V_{ECO}	6	V
Total Power Dissipation		P_{TOT}	200	mW
Isolation Voltage(1*)		V_{iso}	5000	Vrms
Operating temperature		T_{OPR}	-55 to +110	℃
Storage temperature		T_{STG}	-55 to +125	℃
Soldering temperature(1*)		T_{SOL}	260	℃

Notes:

1* 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.

2* Soldering time is 10 seconds

Electro-Optical Characteristics(Ta=25℃ unless specified otherwise)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
In put	Forward voltage	V_F	-	1.2	1.4	V	I_F=20mA
	Reverse current	I_R	-	-	10	μA	V_R=4V
	Input capacitance	C_{in}	-	30	250	pF	V=0,f=1kHz
Out put	Collector-Emitter dark current	I_{CEO}	-	-	100	nA	V_{CE}=20V I_F=0mA
	Collector-Emitter breakdown voltage	BV_{CEO}	60	-	-	V	Ic=0.1mA
	Emitter-Collector breakdown voltage	BV_{ECO}	6	-	-	V	I_E=0.1mA

Transfer Characteristics (Ta=25℃ unless specified otherwise)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Current Transferratio	EX817	CTR	50	-	600	%	I_F=5mA V_{CE}=5V
	EX817A		80	-	160		
	EX817B		130	-	260		
	EX817C		200	-	400		
	EX817D		300	-	600		
	EX817X		100	-	200		
	EX817Y		150	-	300		
Collector-Emitter saturation voltage		$V_{CE(sat)}$	-	0.1	0.2	V	I_F=10mA Ic=1mA
Isolation resistance		R_{IO}	$5x10^{10}$	-	-		V_{IO}=500Vdc 40~60% RH.
Floating capacitance		C_{IO}	-	0.6	1.0	pF	V_{IO}=0,f=1MHz
Cut-off frequency		f_C	-	80	-	kHz	V_{CE}=5V, I_C=2mA R_L=100, -3dB
Rise time		t_r	-	3	18	μs	V_{CE}=2V, Ic=2mA, R_L=100Ω
Fall time		t_f	-	4	18	μs	

Characteristic Curves

Figure1. Forward Current vs Forward Voltage

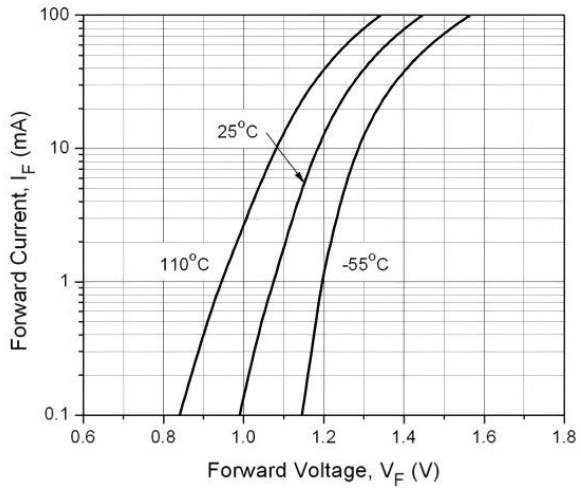


Figure2. Normalized Current Transfer Ratio vs Forward Current

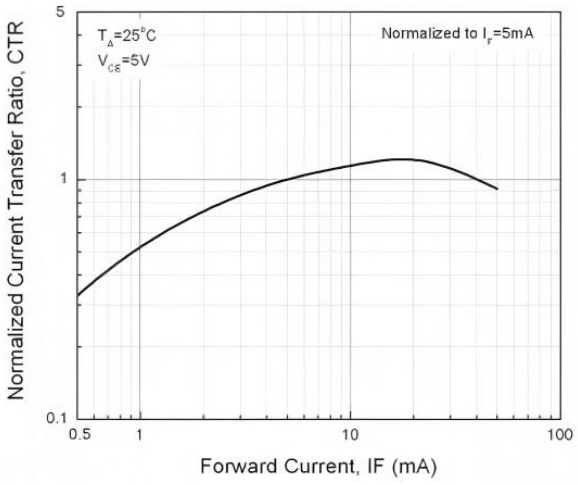


Figure3. Current Transfer Ratio vs Ambient Temperature

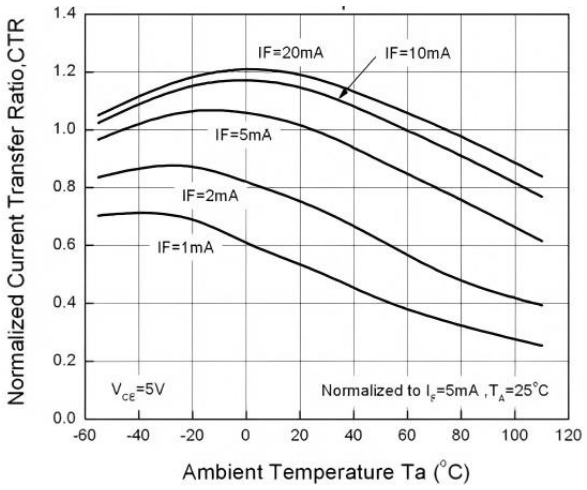


Figure4. Dark Current vs Ambient Temperature

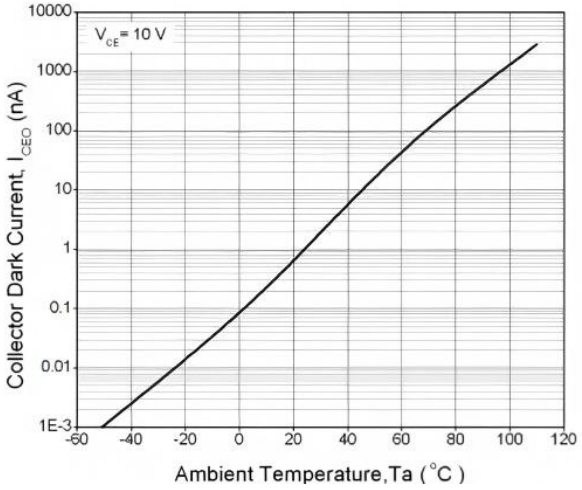


Figure5. Collector-Emitter Saturation Voltage vs Collector Current

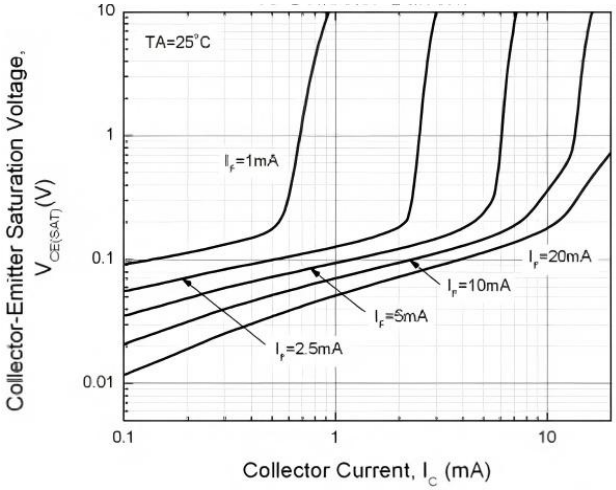


Figure6. Switching Time vs Load Resistance

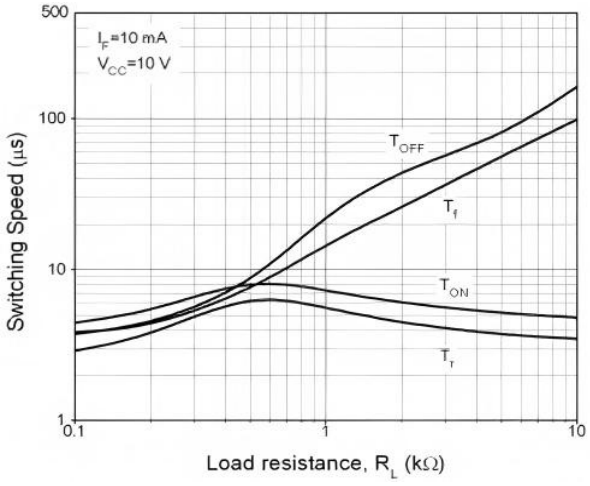
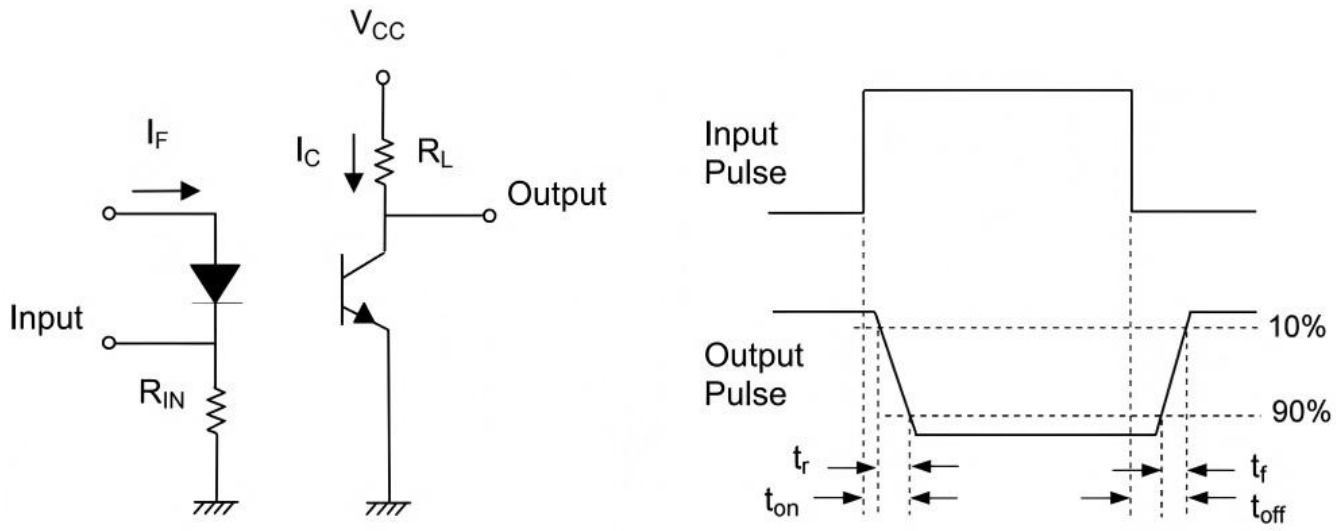
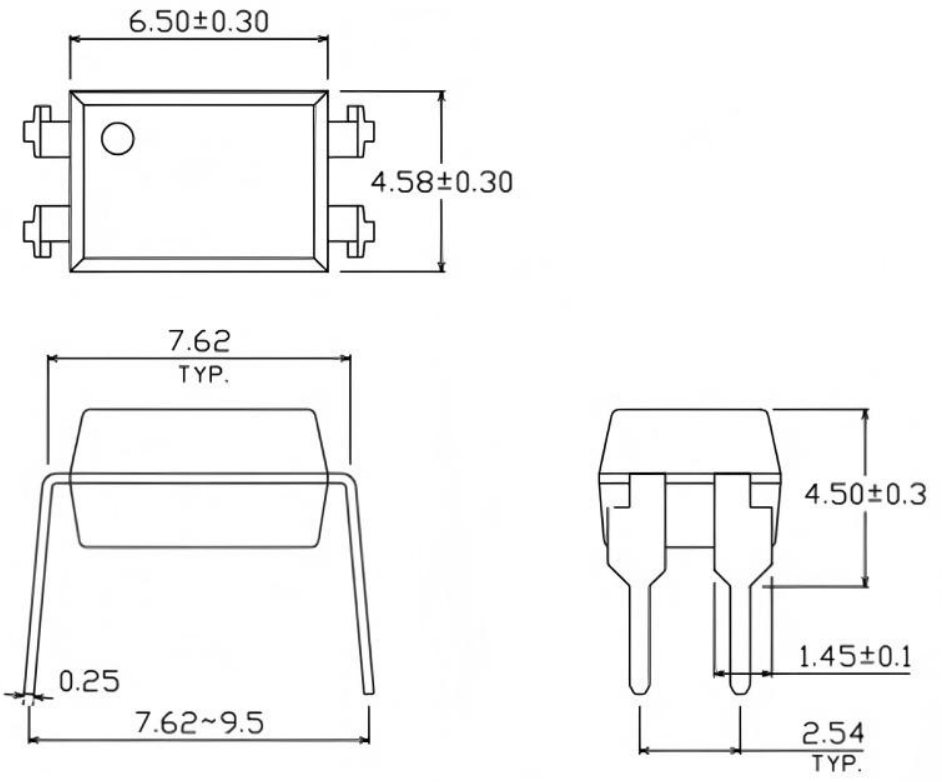


Figure7. Switching Time Test Circuit vs Waveforms

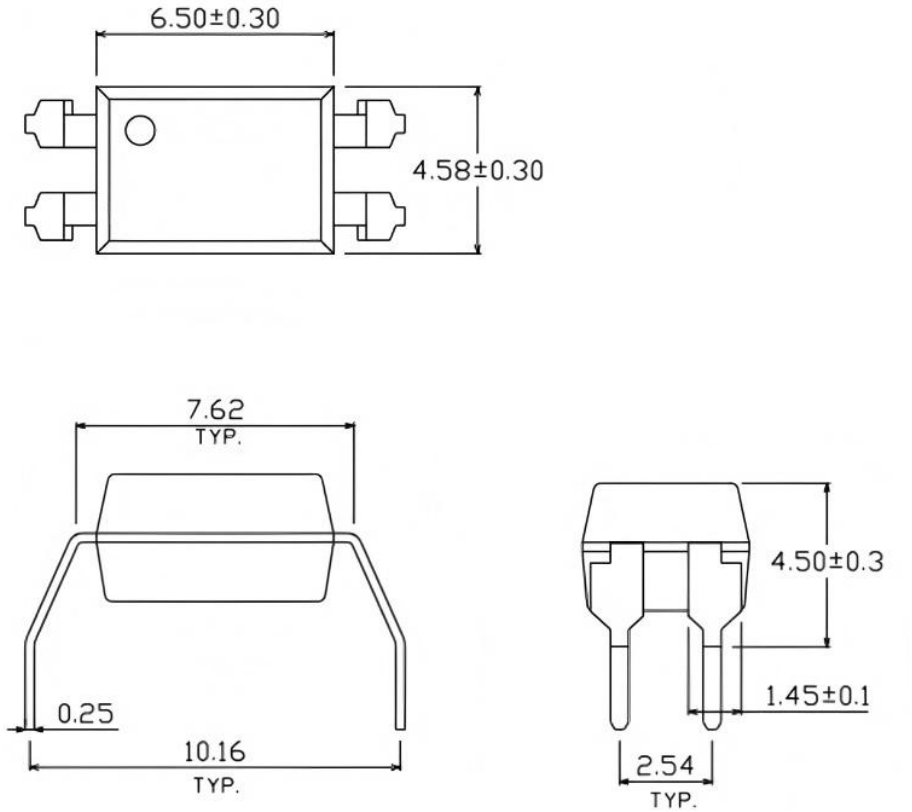


Package Drawing(Unit:mm)

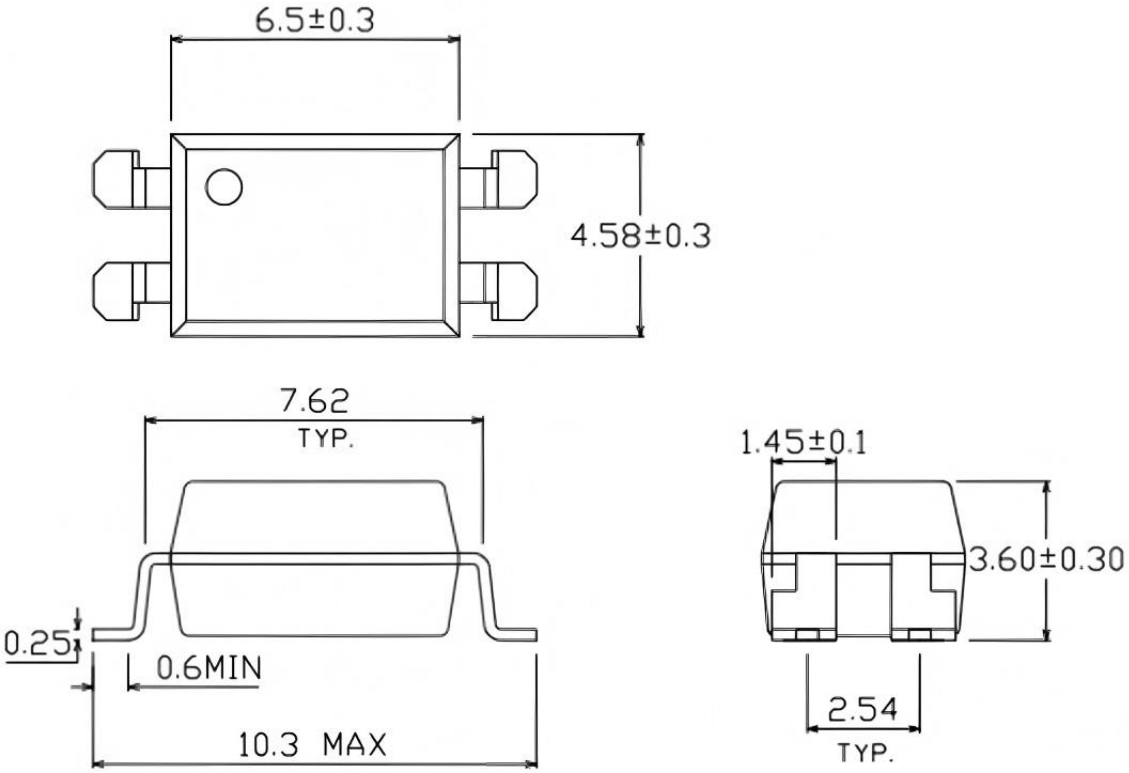
• Standard DIP Type



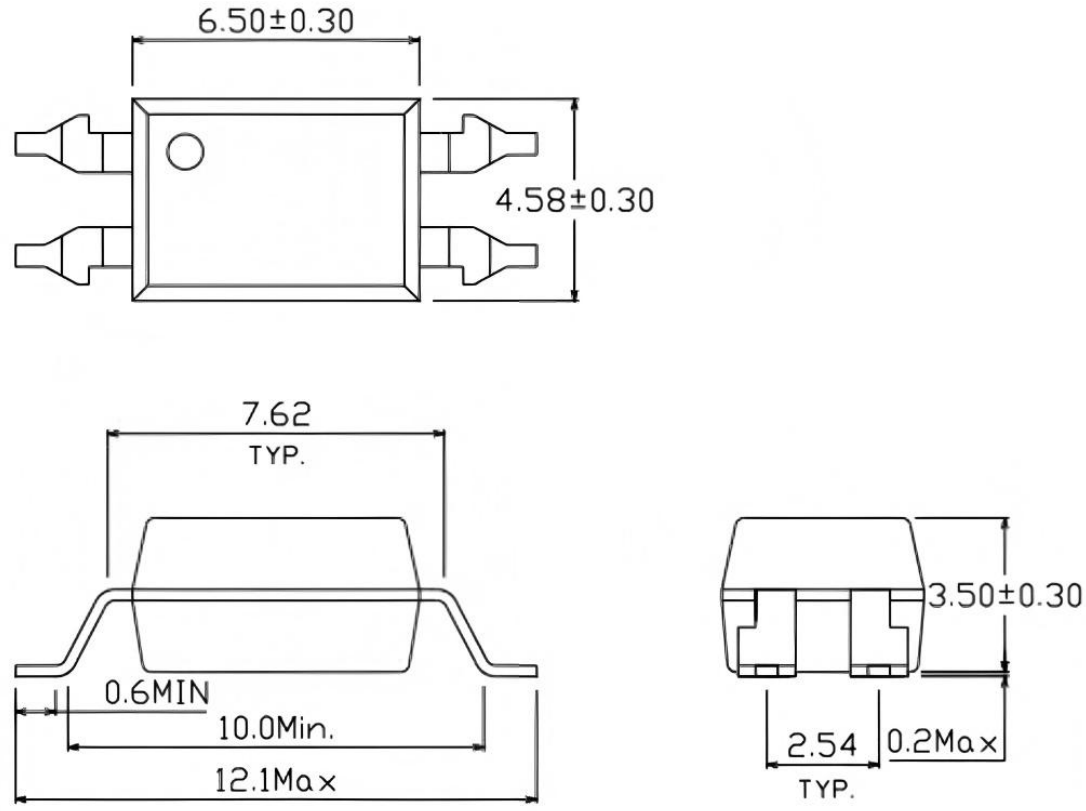
• Standard M Type



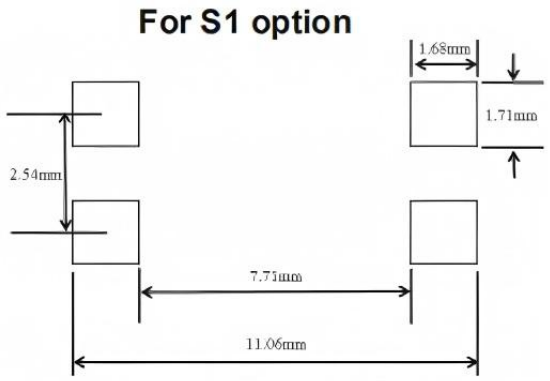
• Standard S1 Type

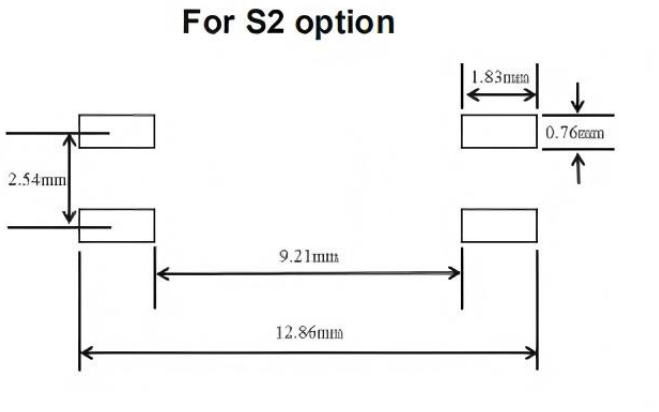


• Standard S2 Type



Recommended pad layout for surface mount leadform





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