

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

MTLP187

产品手册

描述

MTLP187是一款小型贴片的光耦产品，适用于表面贴片组装。MTLP187由砷化镓红外发光二极管与带积分基极-发射极电阻的达林顿光电晶体管组成的高压光电耦合器，VCEO达到300V以上。

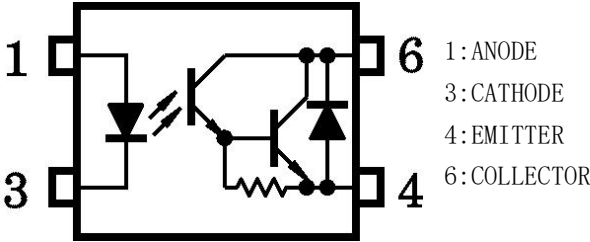
特性

- 集电极-发射极电压:300V (Min.)
- 电流传输比 1000% (Min.)
- 输入-输出隔离电压 Viso=3750Vrms (min.)

应用领域

- 开关电源，智能仪表
- 工业控制，测量仪器
- 复印机等办公设备
- 家用电器：如空调、风扇、热水器等。

封装信息及内部引脚配置

封装	引脚配置	管体标记
 SOP-4		

订单信息

型号	封装	最小包装
MTLP187	SOP-4	3000

极限参数 (Ta=25℃)

参数		符号	额定值	单位
输入端	正向电流	IF	50	mA
	正向电流温飘	ΔIF /℃	-0.7 (Ta≥53℃)	mA/℃
	正向脉冲电流	IFP	1 (100 μs pulse, 100pps)	A

参数		符号	额定值	单位
	反向电压	V_R	6	V
	结温	T_J	125	°C
输出端	输出端功耗	P_C	150	mW
	输出电流	I_C	150	mA
	集电极-发射极电压	V_{CEO}	300	V
	发射极-集电极电压	V_{ECO}	0.3	V
	结温	T_J	125	°C
	输出端功耗降额 ($T_a \geq 25^\circ\text{C}$)	$\Delta P_C / ^\circ\text{C}$	-1.5	mW / °C
	总功耗	P_T	200	mW
隔离电压		Viso	3750 (AC, 1min., R.H. $\leq$ 60%)	Vrms
工作温度		T_{opr}	-55 ~ +110	°C
储存温度		T_{stg}	-55 ~ +125	°C
焊接温度		T_{sol}	260 (10s)	°C
总功耗降额 ($T_a \geq 25^\circ\text{C}$)		$\Delta P_T / ^\circ\text{C}$	-2.0	mW / °C

光电特性 ($T_a = 25^\circ\text{C}$)

参数		符号	条件	最小	典型	最大	单位
输入	正向电压	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	反向电流	I_R	$V_R = 5\text{V}$			10	μA
	终端电容	C_T	$V = 0, f = 1\text{kHz}$	-	30	-	pF
输出	集电极暗电流	I_{CEO}	$V_{CE} = 200\text{V}$	-	10	200	nA
			$V_{CE} = 200\text{V}, T_a = 85^\circ\text{C}$	-	-	20	μA
	集电极-发射极击穿电压	$V_{(BR)CEO}$	$I_C = 0.1\text{mA}, I_F = 0$	300			V
	发射极-集电极击穿电压	$V_{(BR)ECO}$	$I_E = 0.1\text{mA}, I_F = 0$	0.3			V
	电容(集电极 to 发射极)		C_{CE}	$V = 0, f = 1\text{MHz}$		12	pF

耦合的电特性 ($T_a = 25^\circ\text{C}$)

参数	符号	条件	最小	典型	最大	单位
电流传输比 (CTR)	I_C/I_F	$I_F = 1\text{mA}, V_{CE} = 1\text{V}$	1000	4000	-	%
饱和电流传输比 (CTR)	$I_C/I_{F(SAT)}$	$I_F = 10\text{mA}, V_{CE} = 1\text{V}$	500	-	-	%
饱和压降	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_F = 1\text{mA}$	-	-	1.0	V
		$I_C = 100\text{mA}, I_F = 10\text{mA}$	0.3		1.2	

隔离特点 (Ta =25℃)

参数	符号	条件	最小	典型	最大	单位
电容(输入到输出)	C _s	V _s = 0, f = 1 MHz	-	0.8	-	pF
隔离电阻	R _s	V _s = 500 V, R.H. ≤ 60%	5×10 ¹⁰	10 ¹⁴	-	Ω
隔离电压	BV _s	AC, 1 minute	3750	-	-	Vrms
		AC, 1 second, in oil	-	5000	-	
		DC, 1 minute, in oil	-	5000	-	Vdc

开关特性 (Ta =25℃)

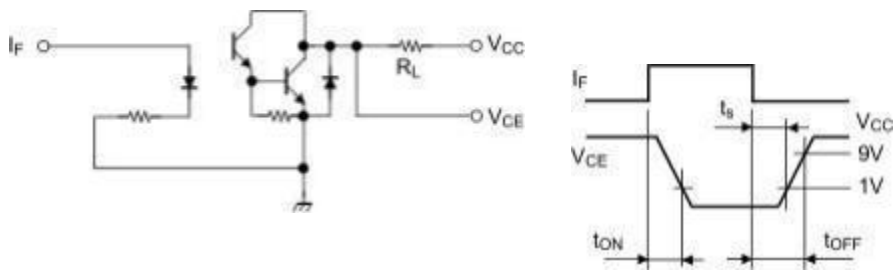
参数	符号	条件	最小	典型	最大	单位
上升时间	t _r	V _{CC} = 10 V, I _c = 10 mA R _L = 100 Ω	-	40	-	μs
下降时间	t _f		-	15	-	
打开时间	t _{on}		-	50	-	
关断时间	t _{off}		-	15	-	
打开时间	t _{ON}	R _L = 180 Ω (Fig.1) V _{CC} = 10 V, I _F = 16 mA	-	5	-	μs
存储时间	t _s		-	40	-	
关断时间	t _{OFF}		-	80	-	

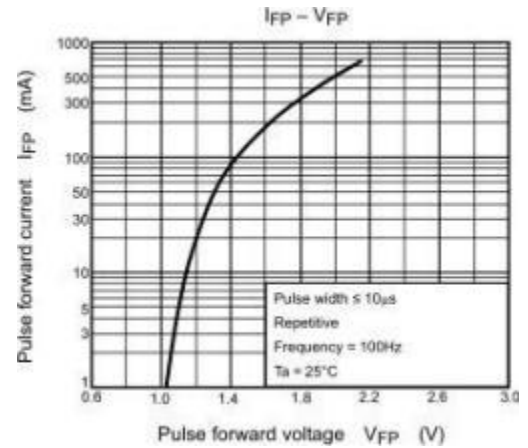
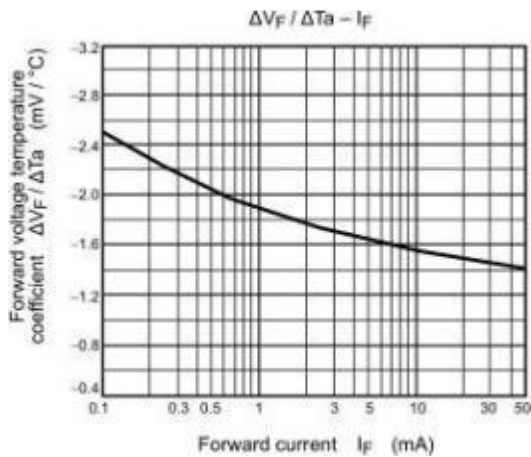
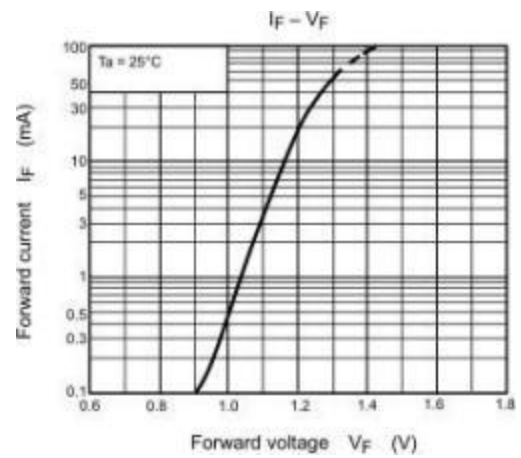
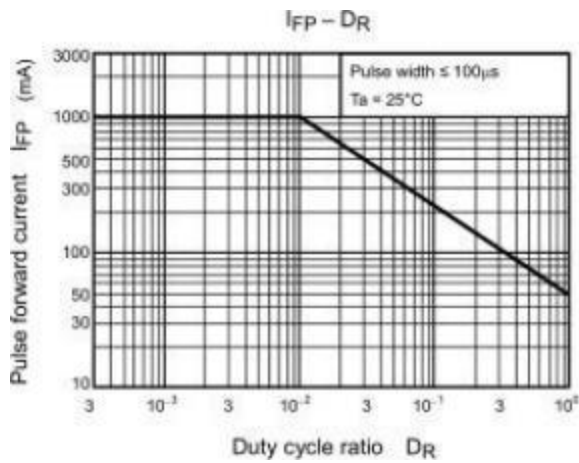
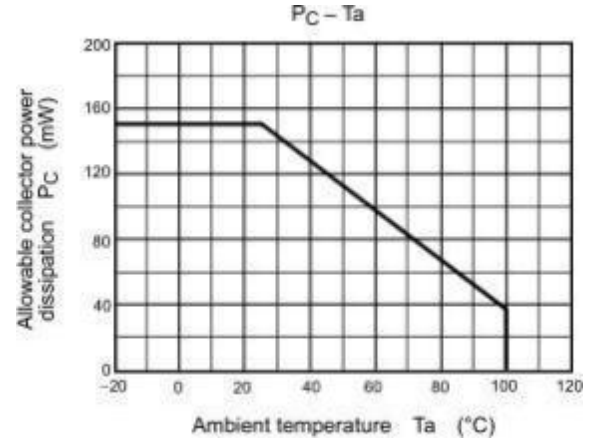
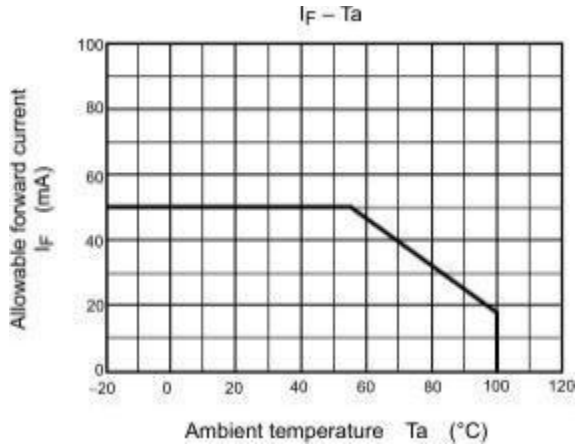
推荐的操作条件

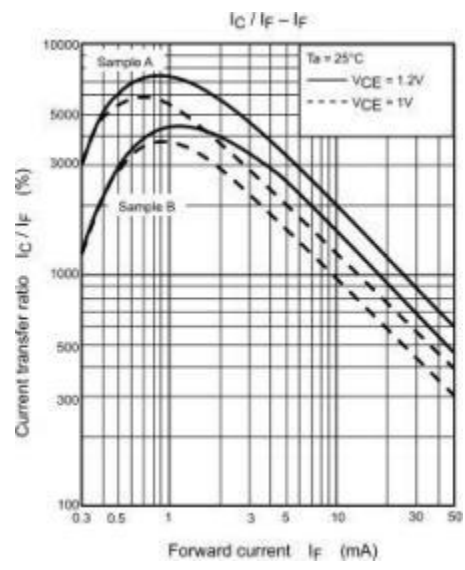
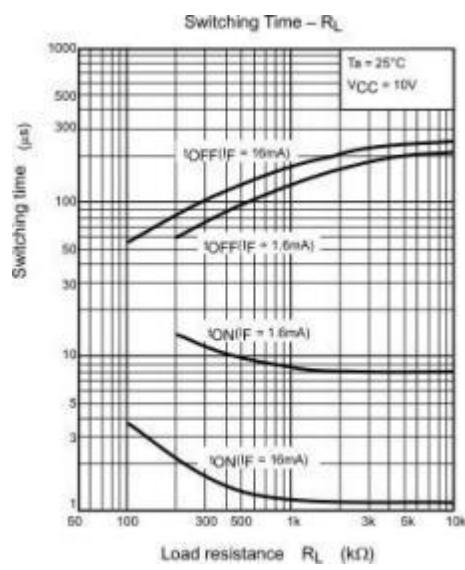
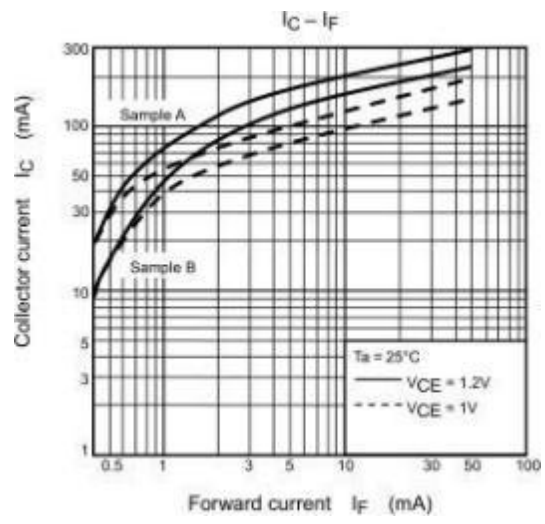
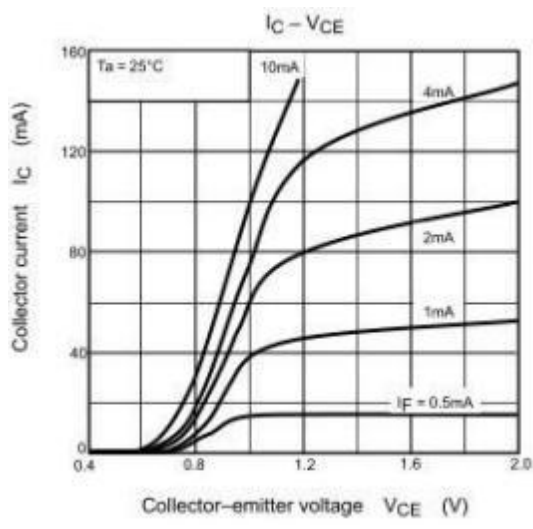
参数	符号	最小	典型	最大	单位
工作电压	V _{CC}	-	-	200	V
正向电流	I _F	-	16	25	mA
输出电流	I _c	-	-	120	mA
工作温度	T _{opr}	-25	-	85	℃

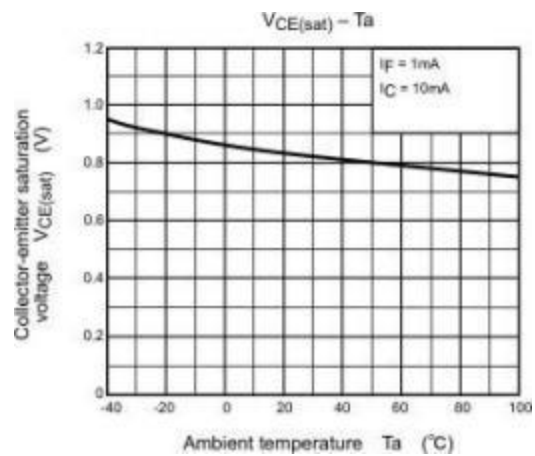
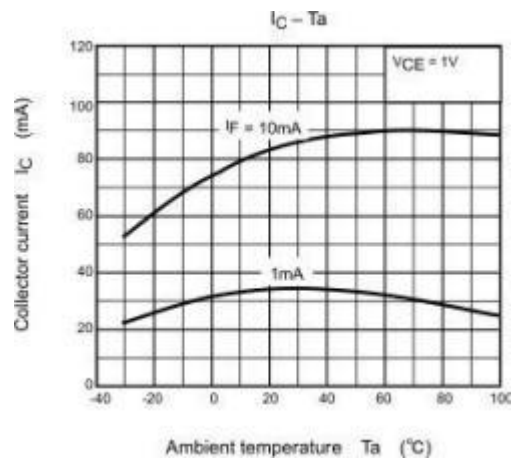
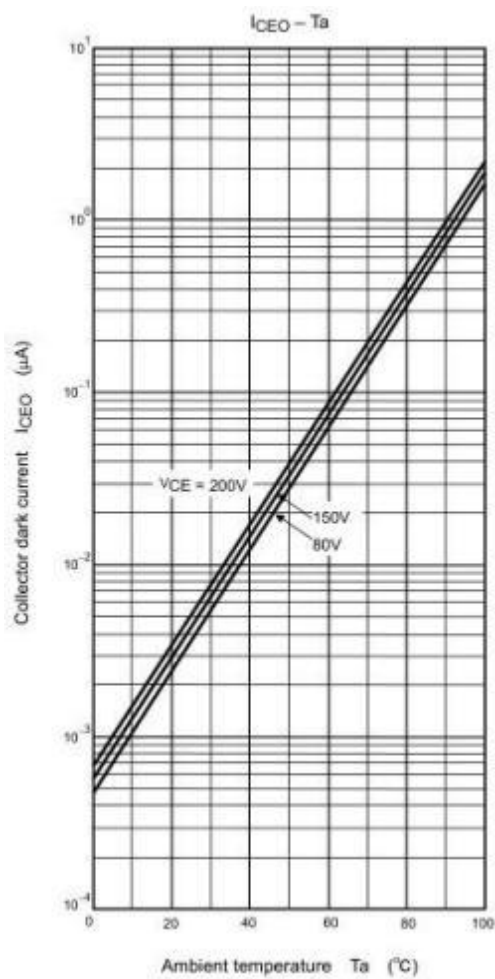
注:建议的操作条件是作为获得器件预期性能的设计指南。此外，每个项目分别是一个独立的准则。在开发设计使用该产品时，请参考本文制定的参数规格

Fig. 1开关时间测试电路

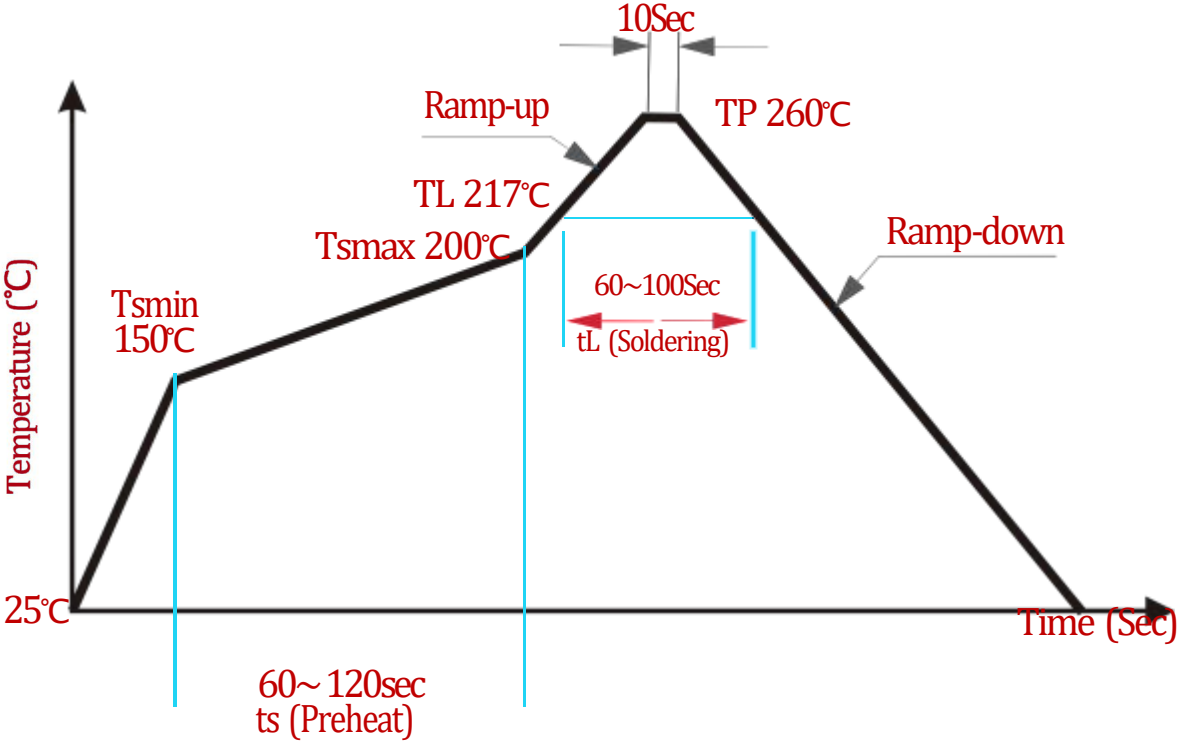




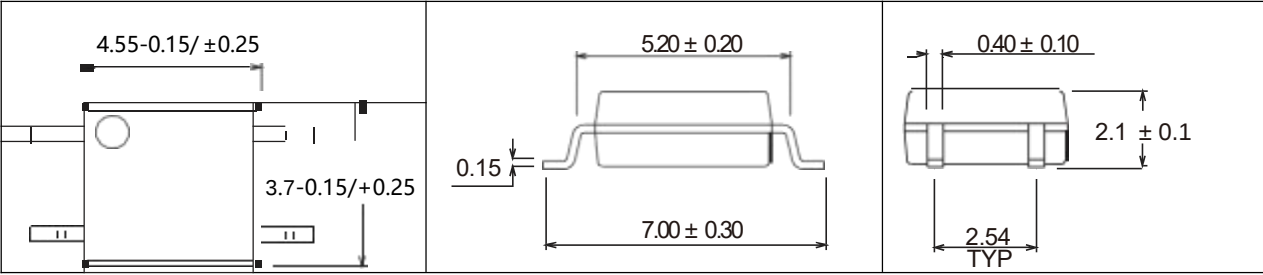




回流焊曲线



外形尺寸



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