单 P 沟道 MOSFET

ELM65103A-S

■概要

ELM65103A-S 是 P 沟道低输入电容,低工作电压,低导通电阻的大电流 MOSFET。

■特点

- Vds=-30V
- Id=-4.5A (Vgs=-10V)
- Rds(on) = 41mΩ (Vgs=-10V)
- Rds(on) = 60mΩ (Vgs=-4.5V)

■绝对最大额定值

如没有特别注明时, Ta=25℃

项目		记号	规格范围	单位	备注
漏极 - 源极电压		Vds	-30	V	
栅极 - 源极电压		Vgs	± 20	V	
漏极电流（定常）	Ta=25℃	Id	-4.5	A	
	Ta=70℃		-3.5		
漏极电流（脉冲）		Idm	-20	A	1, 2
容许功耗	Tc=25℃	Pd	1.38	W	3
	Tc=75℃		0.83		
结合部温度及保存温度范围		Tj, Tstg	- 55~+150	℃	

备注：

1. 脉冲宽度受最大结合部温度限制；
2. 脉冲宽度≤ 300μs，占空比≤ 2%；
3. 安装在表面为 FR-4 板的 1in^2 铜垫上时。

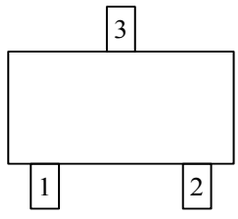
■热特性

项目	记号	典型值	最大值	单位	备注
最大结合部 - 周围环境	Rθja	-	90	℃/W	

备注：安装在表面为 FR-4 板的 1in^2 铜垫上时；另外，安装在最小的铜垫上时为 270℃/W。

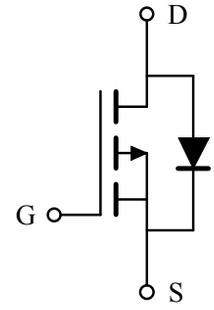
■引脚配置图

SOT-23(俯视图)



引脚编号	引脚名称
1	GATE
2	SOURCE
3	DRAIN

■回路



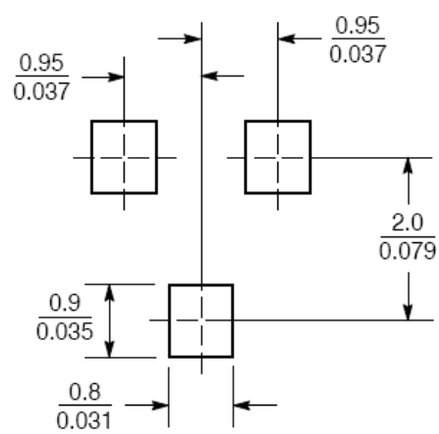
■电特性

如没有特别注明时, Ta=25℃

项目	记号	条件	最小值	典型值	最大值	单位
静态特性						
漏极 – 源极击穿电压	BVdss	Id=–250μA, Vgs=0V	–30	–	–	V
栅极接地时漏极电流	Idss	Vds=–24V, Vgs=0V	–	–	–1	μA
		Vds=–24V, Vgs=0V Ta=125℃	–	–	–10	
栅极漏电电流	Igss	Vds=0V, Vgs= ± 20V	–	–	± 100	nA
栅极阈值电压	Vgs(th)	Vds=Vgs, Id=–250μA	–1.2	–1.8	–2.2	V
漏极 – 源极导通电阻（注）	Rds(on)	Vgs=–10V, Id=–4.5A	–	41	50	mΩ
		Vgs=–4.5V, Id=–3.5A	–	60	70	
正向跨导（注）	Gfs	Vds=–10V, Id=–4.5A	–	4.3	–	S
寄生二极管最大连续电流（注）	Is		–	–	–4.5	A
二极管脉冲电流（注）	Ism		–	–	–18	A
二极管正向压降（注）	Vsd	Is=–1A, Vgs=0V	–	–	–1.2	V
动态特性						
输入电容	Ciss	Vgs=0V, Vds=–10V, f=1MHz	–	885	–	pF
输出电容	Coss		–	86	–	pF
反馈电容	Crss		–	81	–	pF
开关特性						
总栅极电荷（注）	Qg	Vgs=–10V, Vds=–15V Id=–4.5A	–	15	–	nC
栅极 – 源极电荷（注）	Qgs		–	3	–	nC
栅极 – 漏极电荷（注）	Qgd		–	7	–	nC
导通延迟时间（注）	td(on)	Vgs=–10V, Vds=–15V Id=–1A, Rd=15Ω Rgen=6Ω	–	8		ns
导通上升时间（注）	tr		–	12		ns
关闭延迟时间（注）	td(off)		–	30		ns
关闭下降时间（注）	tf		–	23		ns
寄生二极管反向恢复时间（注）	trr	If=–4.5A, dIf/dt=100A/μs	–	32.0		ns
寄生二极管反向恢复电荷（注）	Qrr		–	13.5	–	nC

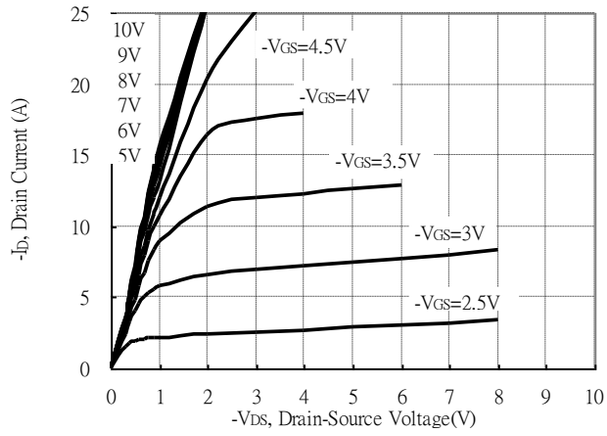
注）脉冲测试：脉冲宽度≤ 300μs，占空比≤ 2%；

■参考焊盘图

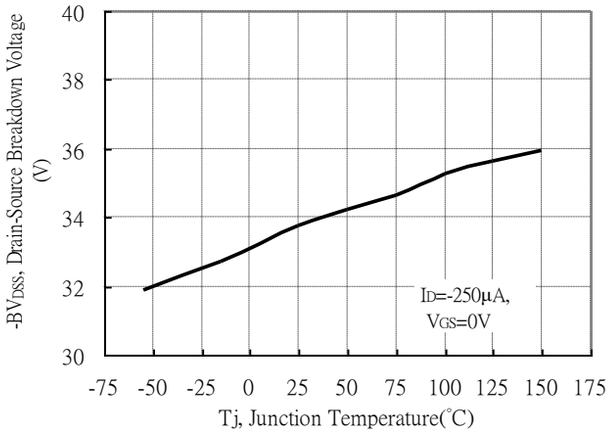


■标准特性和热特性曲线

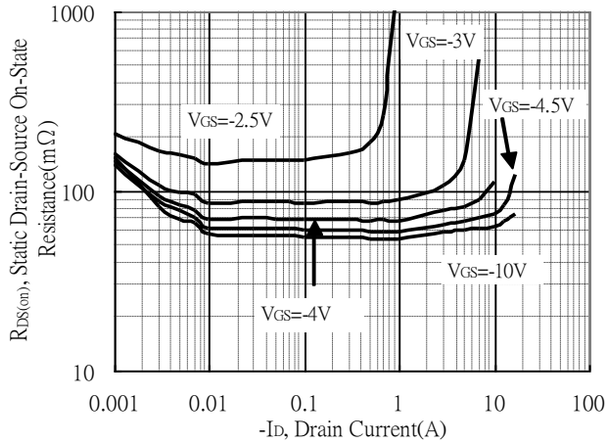
Typical Output Characteristics



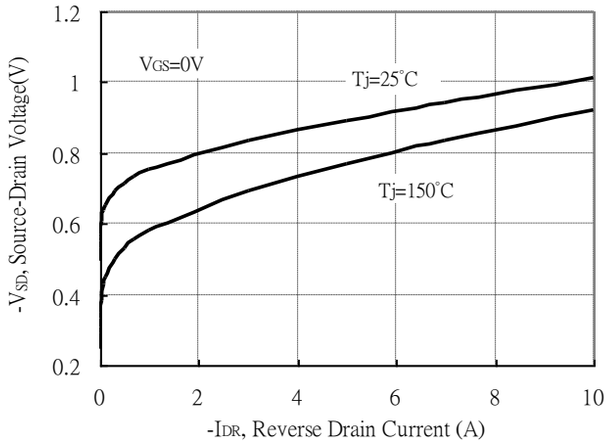
Brekdown Voltage vs Ambient Temperature



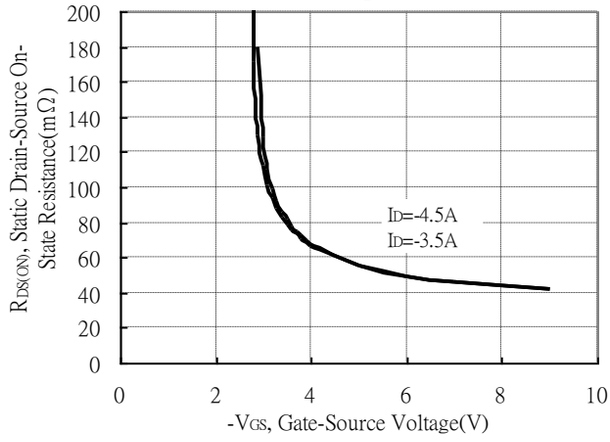
Static Drain-Source On-State resistance vs Drain Current



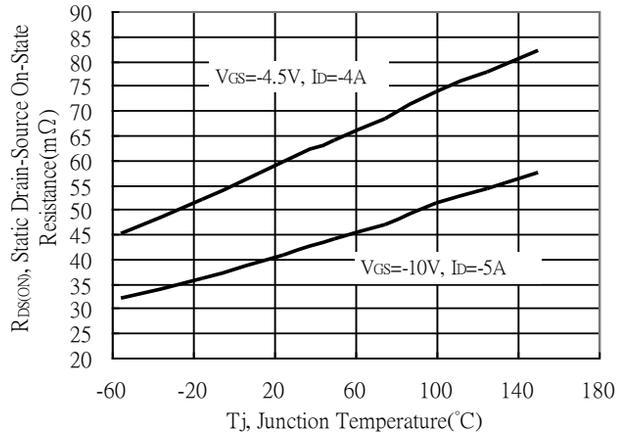
Reverse Drain Current vs Source-Drain Voltage



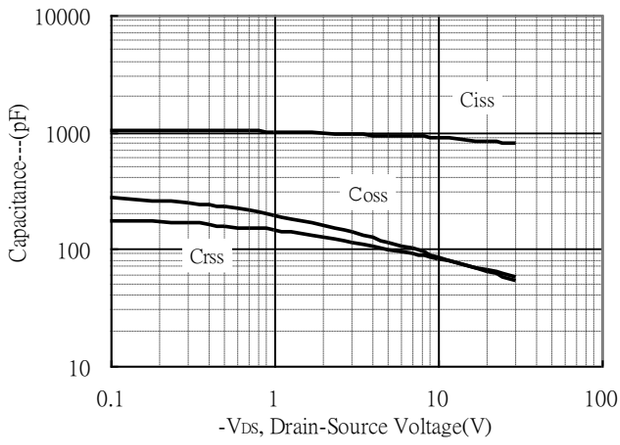
Static Drain-Source On-State Resistance vs Gate-Source Voltage



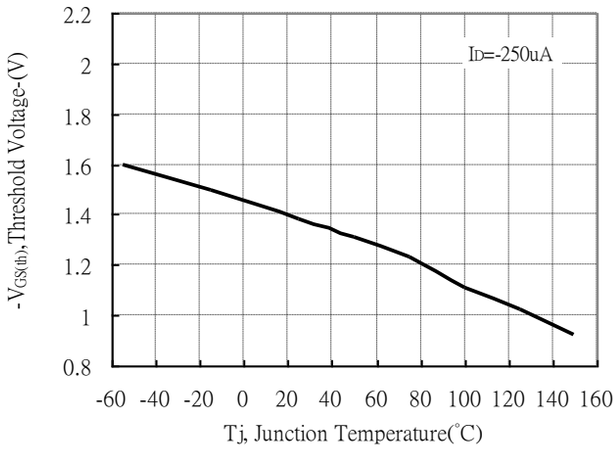
Drain-Source On-State Resistance vs Junction Tempearture



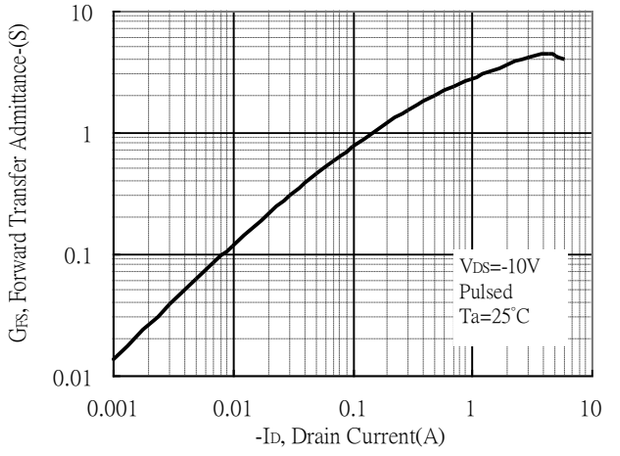
Capacitance vs Drain-to-Source Voltage



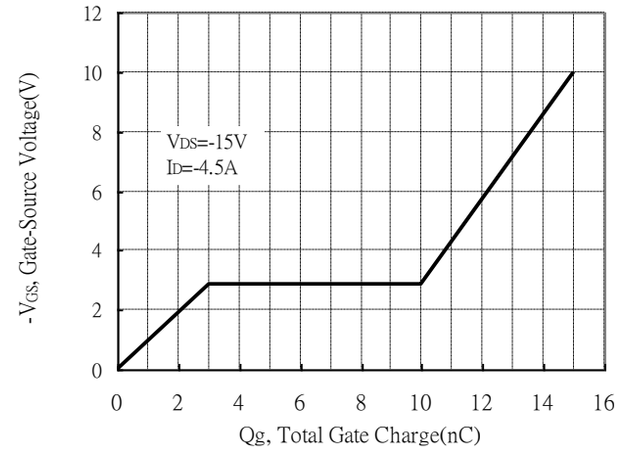
Threshold Voltage vs Junction Tempearture



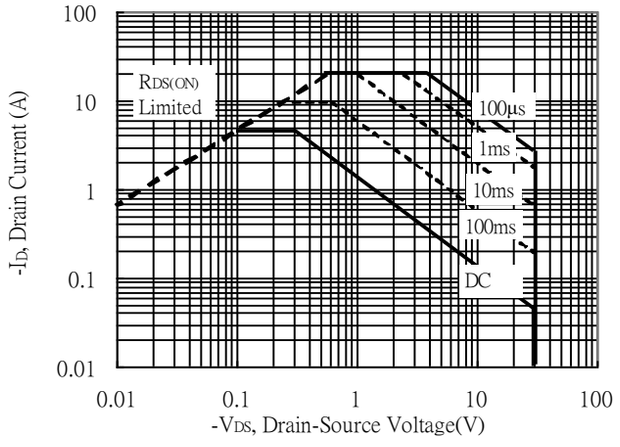
Forward Transfer Admittance vs Drain Current



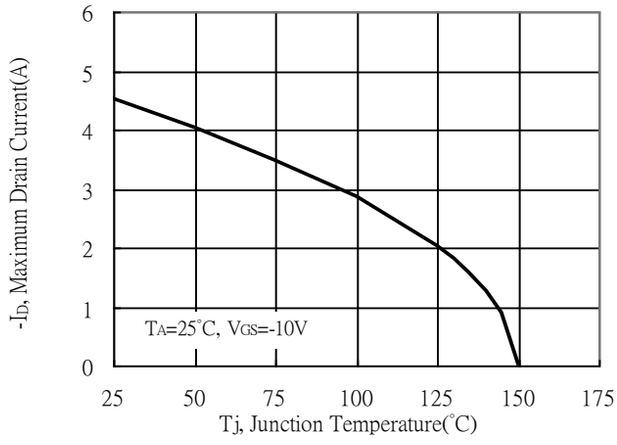
Gate Charge Characteristics



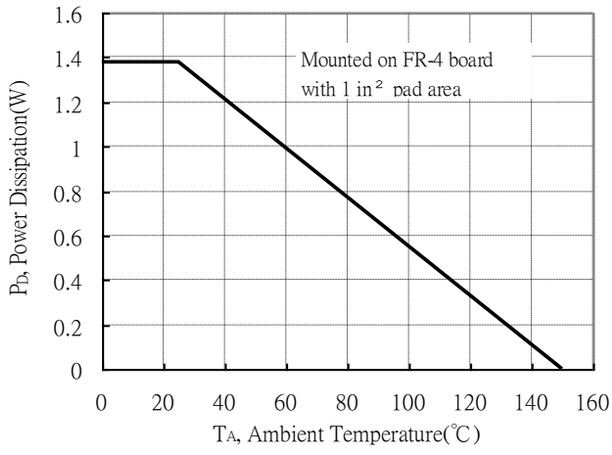
Maximum Safe Operating Area



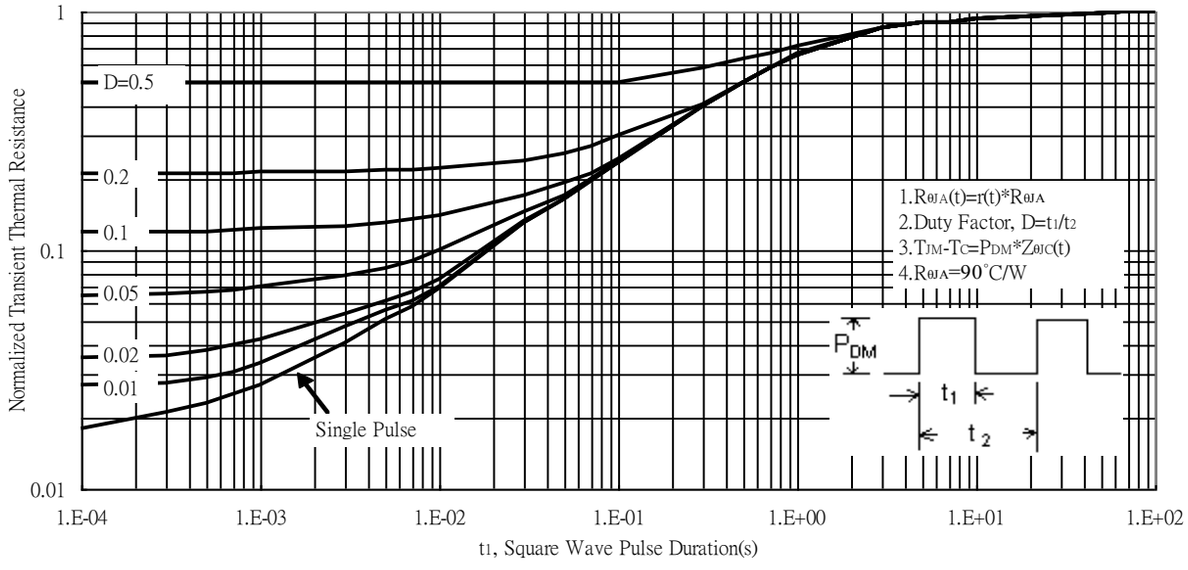
Maximum Drain Current vs JunctionTemperature



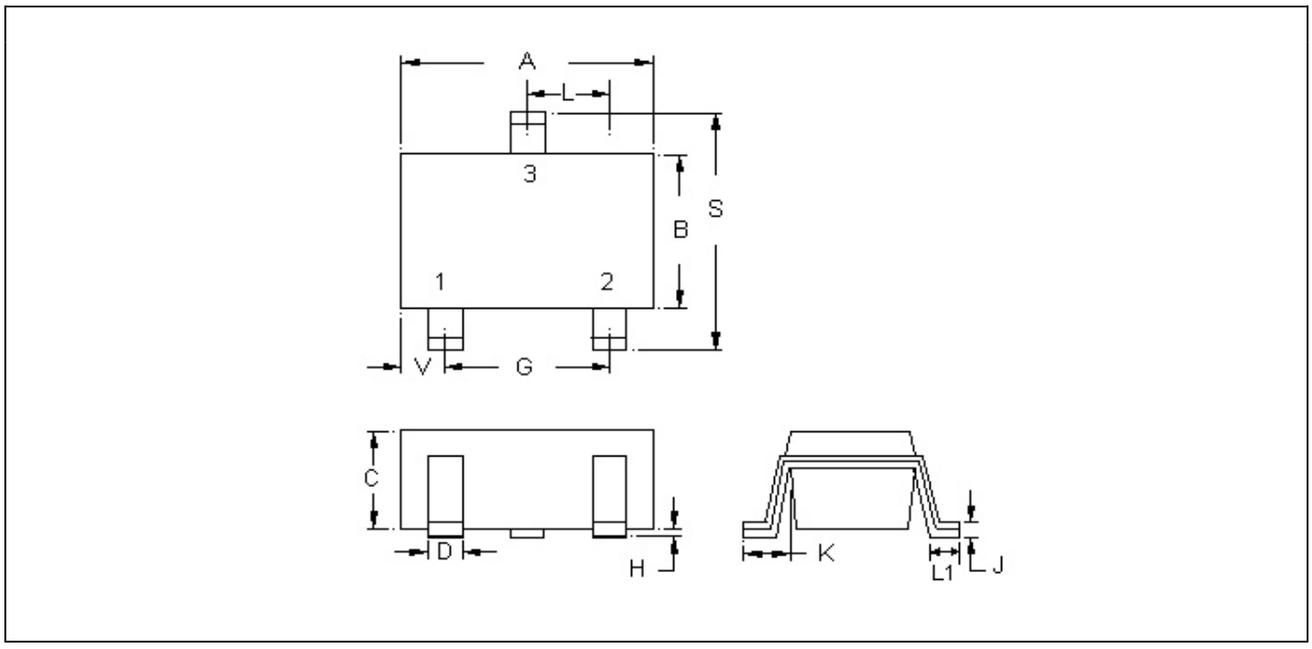
Power Derating Curve



Transient Thermal Response Curves



■SOT-23 尺寸



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0032	0.0079	0.08	0.20
B	0.0472	0.0669	1.20	1.70	K	0.0118	0.0266	0.30	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1161	2.10	2.95
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10	L1	0.0118	0.0197	0.30	0.50

Notes: 1.Controlling dimension: millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
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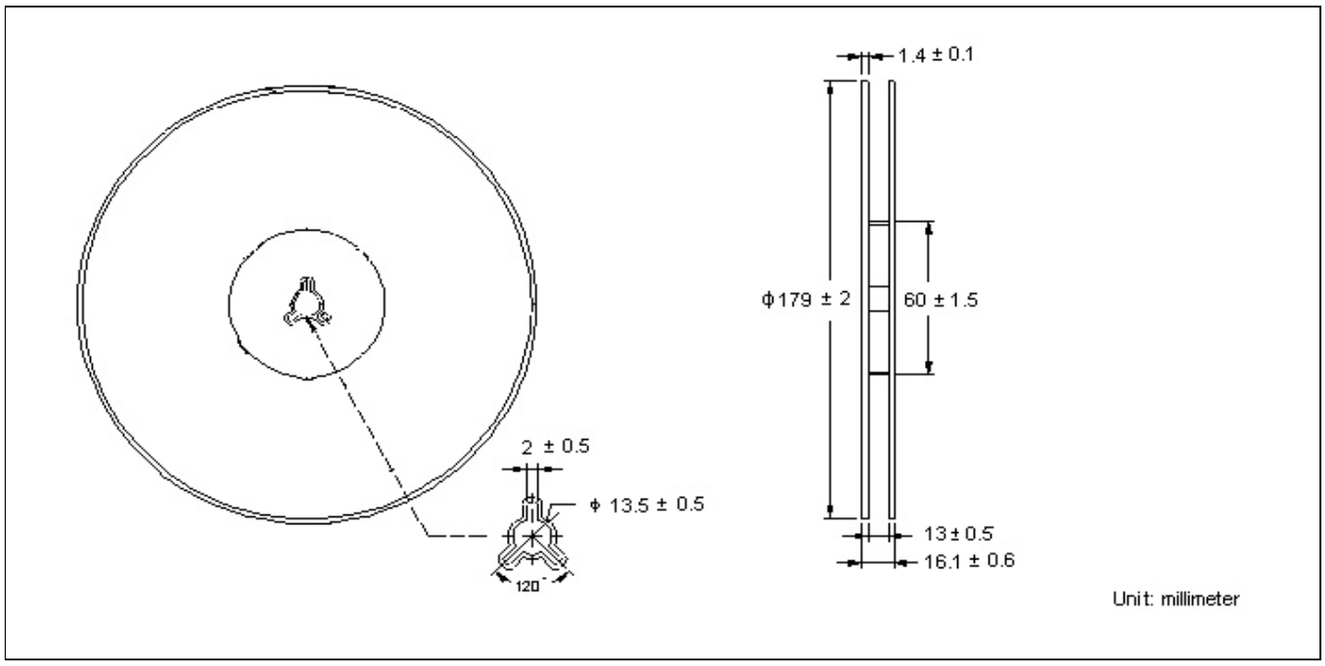
Material:

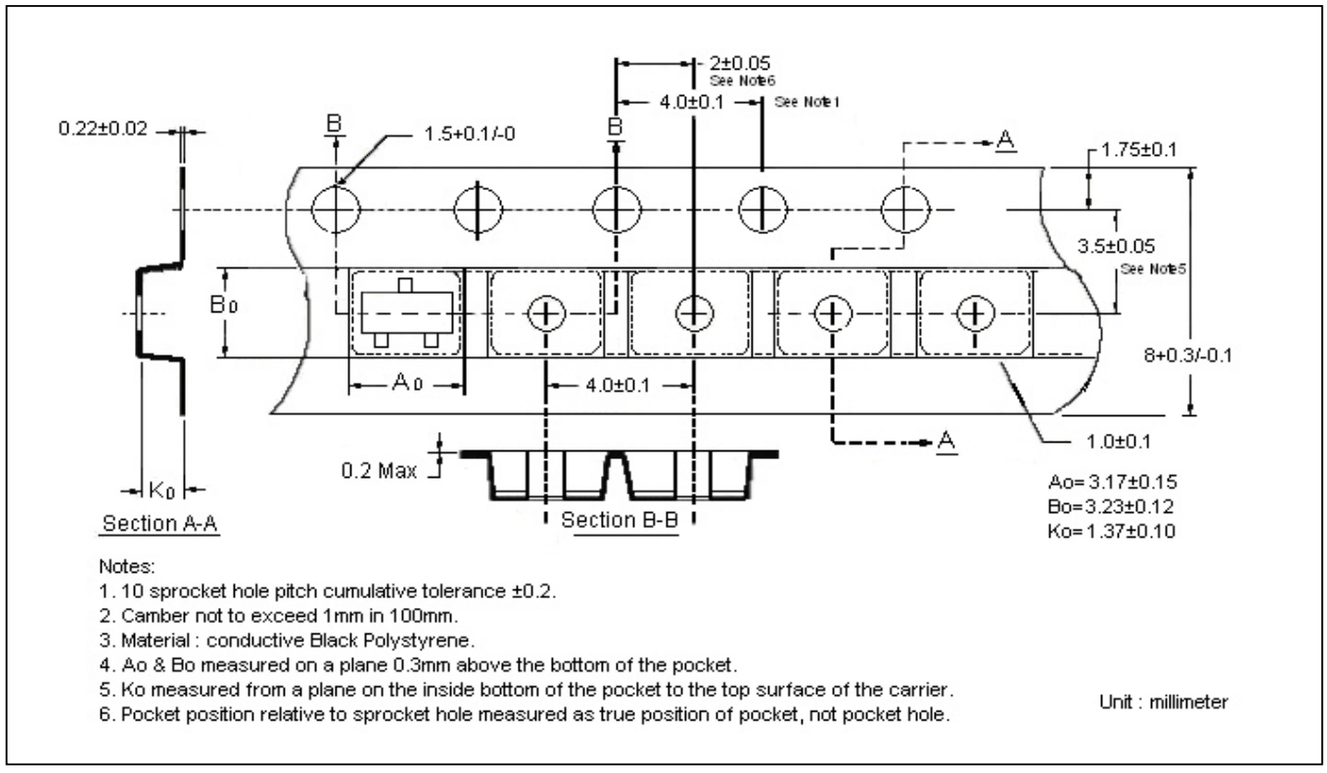
- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

■卷带和载带尺寸

· 卷带



· 载带



Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material : conductive Black Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter