N-沟道超级结功率 MOS 管 SIF65R900

N-CHANNEL SUPER JUNCTION POWER MOSFET

●特点：新高压器件技术 低导通电阻和低传导损耗 封装小 超低栅极电荷导致较低的驱动要求 100%雪崩测试 符合RoHS规范

●**FEATURES**：■NEW TECHNOLOGY FOR HIGH VOLTAGE DEVICE ■LOW ON-RESISTANCE AND LOW CONDUCTION LOSSES ■SMALL PACKAGE ■ULTRA LOW GATE CHARGE CAUSE LOWER DRIVING REQUIREMENTS ■100% AVALANCHE TESTED■ROHS COMPLIANT

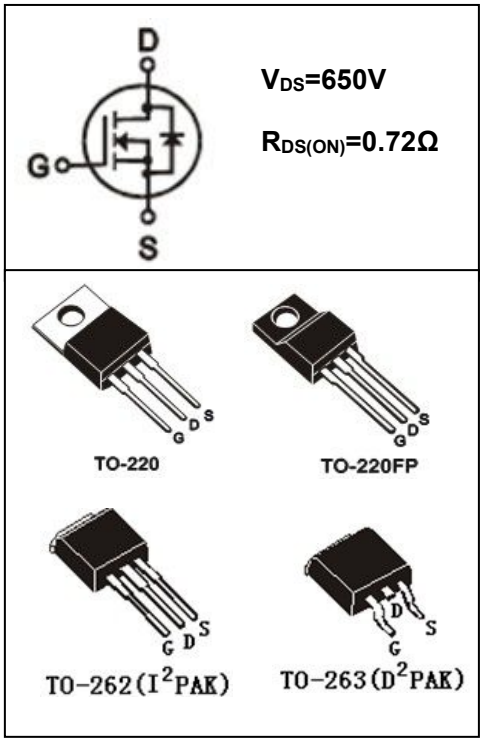
●应用：功率因数校正（PFC） 开关电源（SMPS） UPS 电源

●**APPLICATION:** ■POWER FACTOR CORRECTION （PFC） ■SWITCHED MODE POWER SUPLIES(SMPS) ■ UNINTERRUPTIBLE POWER SUPPLY（UPS）

●最大额定值（TC=25°C）

●Absolute Maximum Ratings（Tc=25°C） TO-220/220FP/262/263

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V_{DS}	650	V
栅-源电压 gate-source Voltage	V_{GS}	±30	V
漏极电流 Continuous Drain Current TC=25℃	I_D	5	A
漏极电流 Continuous Drain Current TC=100℃	I_D	3.2	A
最大脉冲电流 Drain Current －Pulsed ①	I_{DM}	15	A
耗散功率 Power Dissipation	P_D	Others：37 220FP：26	W
最高结温 Junction Temperature	Tj	150	°C
存储温度 Storage Temperature	T_{STG}	-55-150	°C
漏源电压斜率 Drain Source voltage slope	dV/dt	50	V/ns
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	E_{AS}	150	mJ



●热特性

●Thermal Characteristic

参数 PARAMETER	符号 SYMBOL	最大值 MAX		单位 UNIT
		TO-220/TO-262,263	TO-220FP	
热阻结-壳 Thermal Resistance Junction-case	Rth_{JC}	3.4	4.8	℃/W
热阻结-环境 Thermal Resistance Junction-ambient	Rth_{JA}	62.5	62.5	℃/W

●订单信息/ORDERING INFORMATION:

包装形式/PACKING	订货编码/ORDERING CODE	
	普通塑封料/ Normal Package Material	无卤塑封料/Halogen Free
TO-220 条管装/TUBE PACKING	SIF65R900 TO-220-TU	SIF65R900 TO-220-TU-HF
TO-220FP 条管装/TUBE PACKING	SIF65R900 TO-220FP-TU	SIF65R900 TO-220FP-TU-HF
TO-262 或 263 条管装/TUBE PACKING	SIF65R900 TO-262-TU 或 SIF65R900 TO-263-TU	SIF65R900 TO-262-TU-HF 或 SIF65R900 TO-263-TU-HF
TO-263 编带装/TAPE & REEL PACKING	SIF65R900 TO-263-TR	SIF65R900 TO-263-TR-HF

N-沟道超级结功率 MOS 管 SIF65R900

N-CHANNEL SUPER JUNCTION POWER MOSFET

电特性（Tc=25°C）

●Electronic Characteristics（Tc=25°C）

参数 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
漏-源击穿电压 Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	650			V
漏-源漏电流 Drain-source Leakage Current	I_{DSS}	V_{DS} =650V, V_{GS} =0V, Tj=25°C			1	μA
栅极漏电流 Gate-body Leakage Current (V_{DS} = 0)	I_{GSS}	V_{GS} =±30V			±100	nA
栅极开启电压 Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=250μA	2.0		4.0	V
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS} =10V, I_D=2.5A		0.72	0.90	Ω
跨导 Forward Transconductance	gfs	V_{DS} =10V, I_D=2.5A		3.5		S
输入电容 Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 50V F = 1.0MHZ		343		pF
输出电容 Output Capacitance	Coss			29		
反向传输电容 Reverse transfer Capacitance	Crss			1.5		
栅极电荷 Total Gate Charge	Qg	I_D =5A, V_{DS} = 10V V_{GS} = 10V		5.3		nC
栅源电荷 Gate-to-Source Charge	Qgs			2.2		
栅漏电荷 Gate-to-Drain Charge	Qgd			0.7		
栅电阻 Intrinsic Gate Resistance	RG	f=1MHz open drain		2.9		Ω
开启延迟 Turn -on Delay Time	Td(on)	V_{DD}=380V, I_D =8A R_G=20Ω VGS=10V		15		ns
上升时间 Turn -on Rise Time	tr			14		
关断延迟 Turn -Off Delay Time	Td(off)			23		
下降时间 Turn -Off Fall Time	tf			22		
二极管正向电流 Continuous Diode Forward Current	I_{SD}	TC=25°C			5	A
二极管正向压降 Diode Forward Voltage	V_{SD}	Tj=25°C, Isd=5.0A V_{GS} =0V		0.9	1.3	V
反向恢复时间 Reverse Recovery Time	trr	Tj=25°C,If=5.0A di/dt=100A/μs		157		ns
反向恢复电荷 Reverse Recovery Charge	Qrr			1.03		uC
反向恢复电流峰值 Peak Reverse Recovery Current	Irrm			11.5		A

注释(Notes):

① 脉冲宽度：以最高节温为限制

Repetitive rating: Pulse width limited by maximum junction temperature

② EAS测试条件：VDD=50V RG=25Ω L=20mH, T_J=25℃

EAS Test condition: VDD=50V RG=25Ω L=20mH, T_J=25℃

● 特性曲线 Characteristic curve

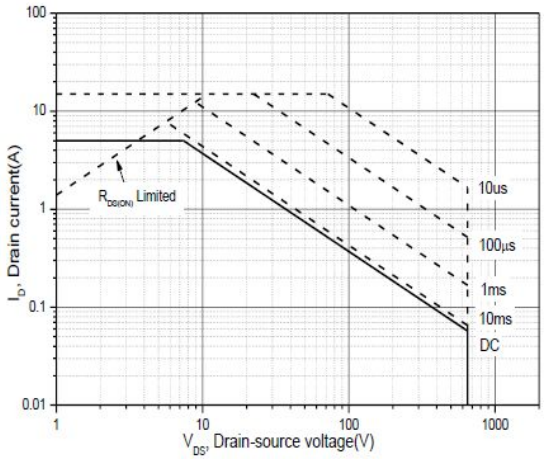


图 1 最大安全工作区曲线 (TO-220/262/263)

Fig1 Maximum Safe Operating Area (TO-220/262/263)

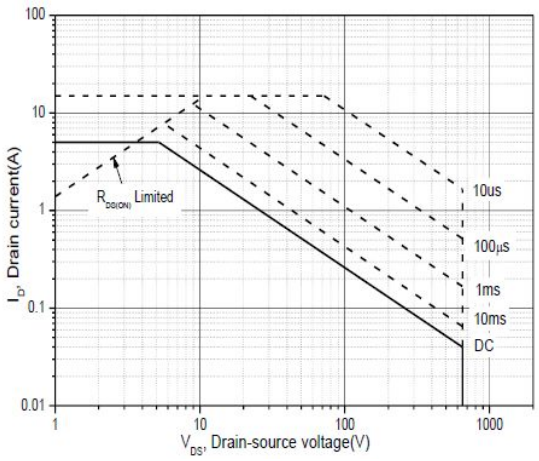


图 2 最大安全工作区曲线 (TO-220FP)

Fig2 Maximum Safe Operating Area

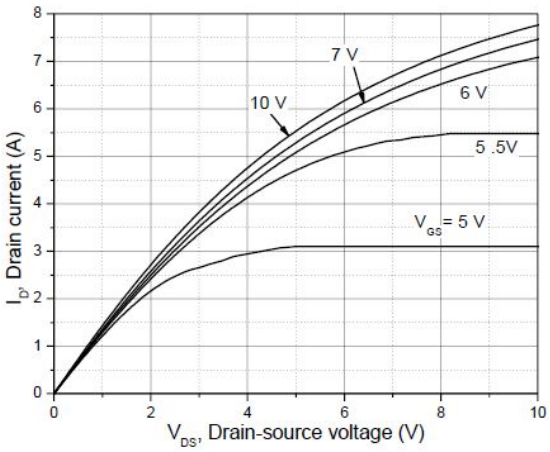


图 3 输出特性曲线, Tc=25℃

Fig3 Typical Output Characteristics

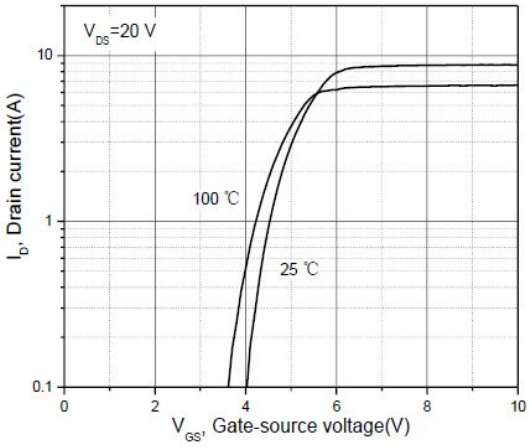


图 4 传输特性曲线

Fig4 Transfer Characteristics

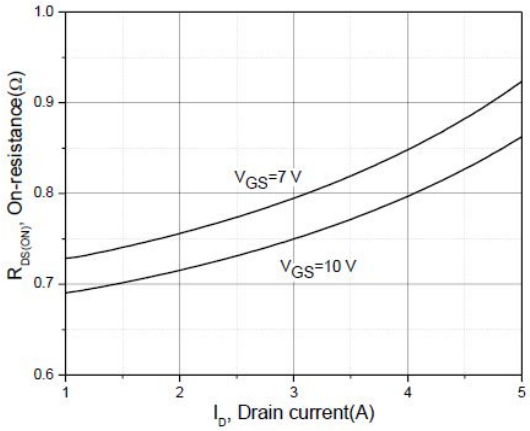


图 5 静态导通电阻与电流曲线

Fig5 Static drain-source On-Resistance

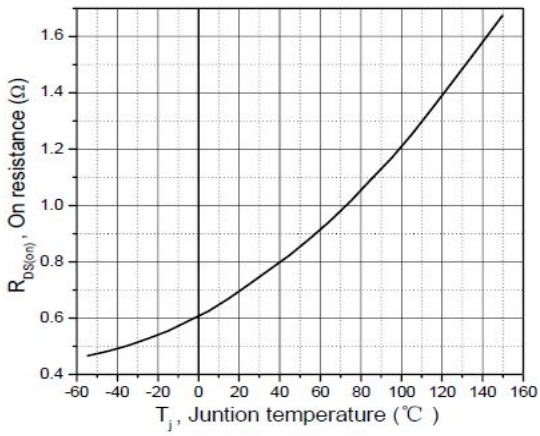


图 6 导通电阻与结温曲线

Fig6 RDSON VS Junction Temperature

● 特性曲线 Characteristic curve

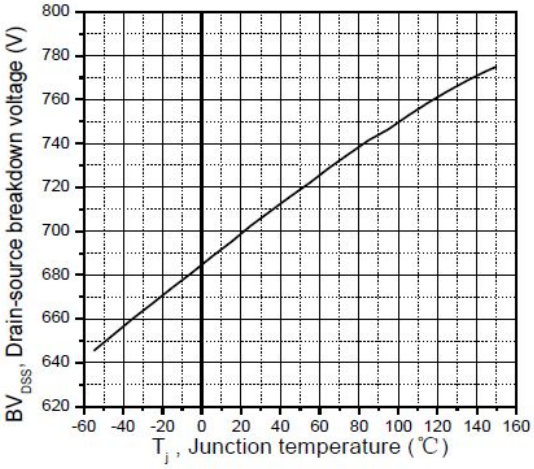


图 7　BVDSS 与结温曲线

Fig7　BVDSS VS Junction Temperature

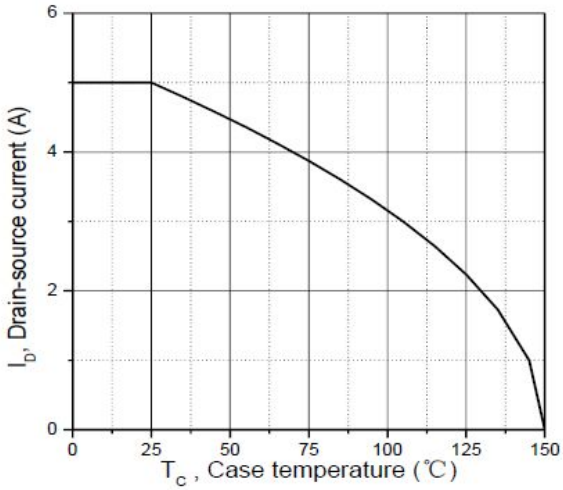


图 8　最大 ID 与结温曲线

Fig8　Maximum ID VS Junction Temperature

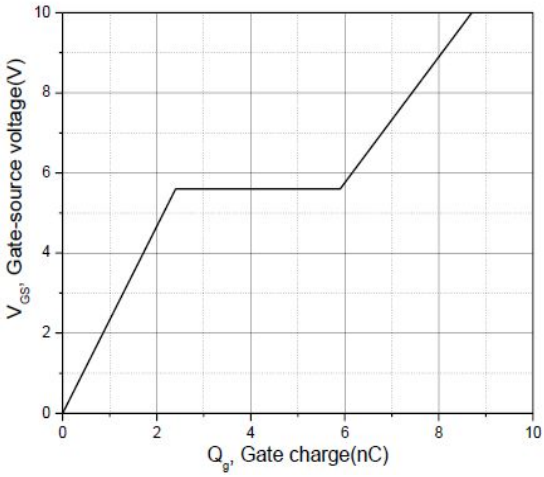


图 9　栅电荷与 VGS 关系曲线

Fig9　Gate Charge waveforms

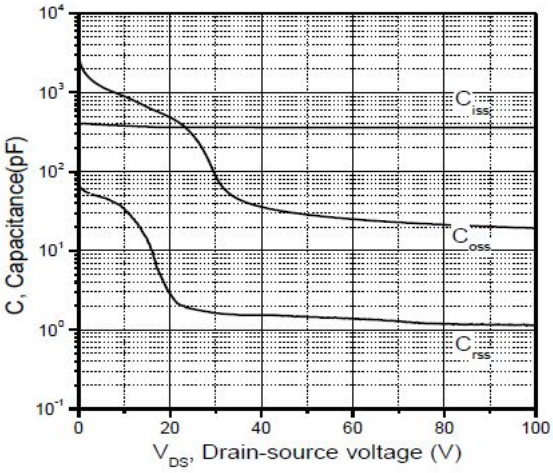


图 10　电容与漏源电压关系曲线

Fig10　Capacitance

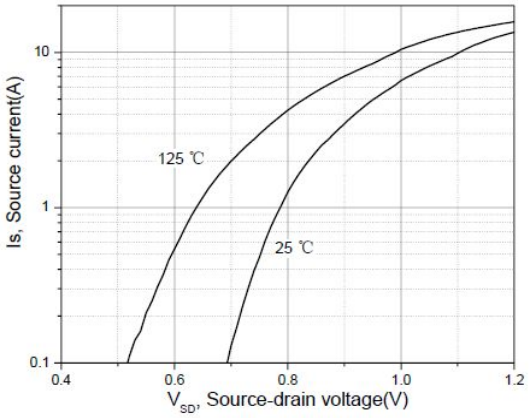


图 11　二极管正向电压曲线

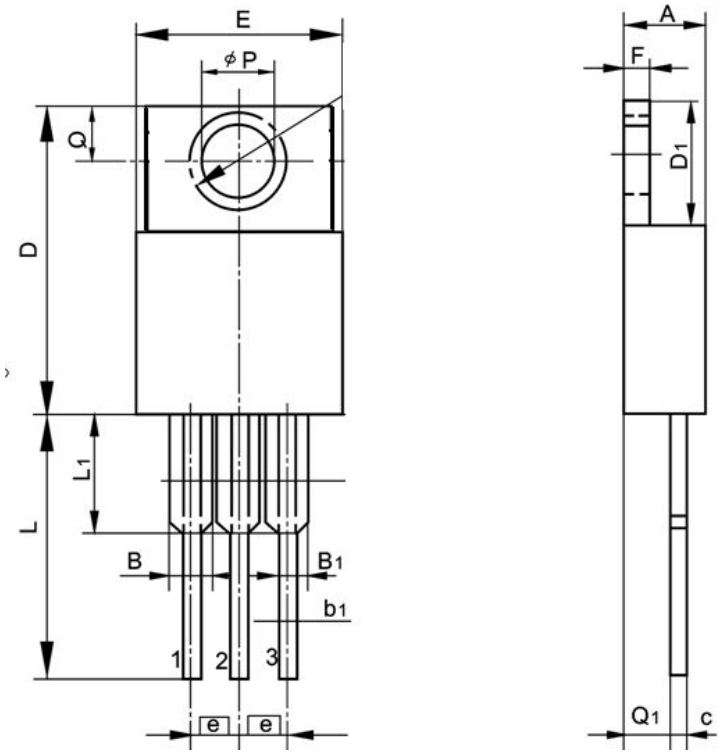
Fig11　Typical Source-Drain Diode Forward Voltage

TO-220 封装机械尺寸

TO-220 MECHANICAL DATA

单位：毫米/UNIT：mm

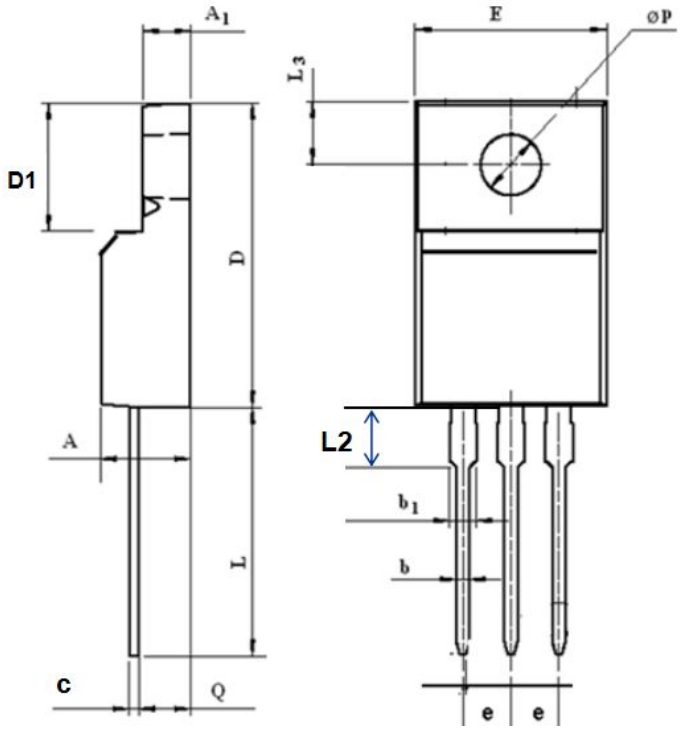
符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	4.00		4.80	E	9.90		10.70
B	1.20		1.50	e		2.54	
B1	1.00		1.40	F	1.10		1.45
b1	0.65		1.00	L	12.50		14.50
c	0.35		0.75	L1	3.00	3.50	4.00
D	15.00		16.50	Q	2.50		3.00
D1	5.90		6.90	Q1	2.00		3.00
				ϕP	3.50		3.90



TO-220FP 封装机械尺寸
TO-220FP MECHANICAL DATA

单位:毫米/UNIT：mm

符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	4.40		4.95	E	9.60		10.30
A_1	2.30		2.90	e		2.54	
b	**0.70**		**0.90**	**L**	**12.40**		**14.00**
b_1	**1.18**		**1.45**	**L_2**	**2.30**		**2.60**
c	**0.40**		**0.70**	L_3	3.00		4.00
D	14.50		17.00	øp	3.00		3.50
D1	6.10		9.00	Q	2.30		2.80

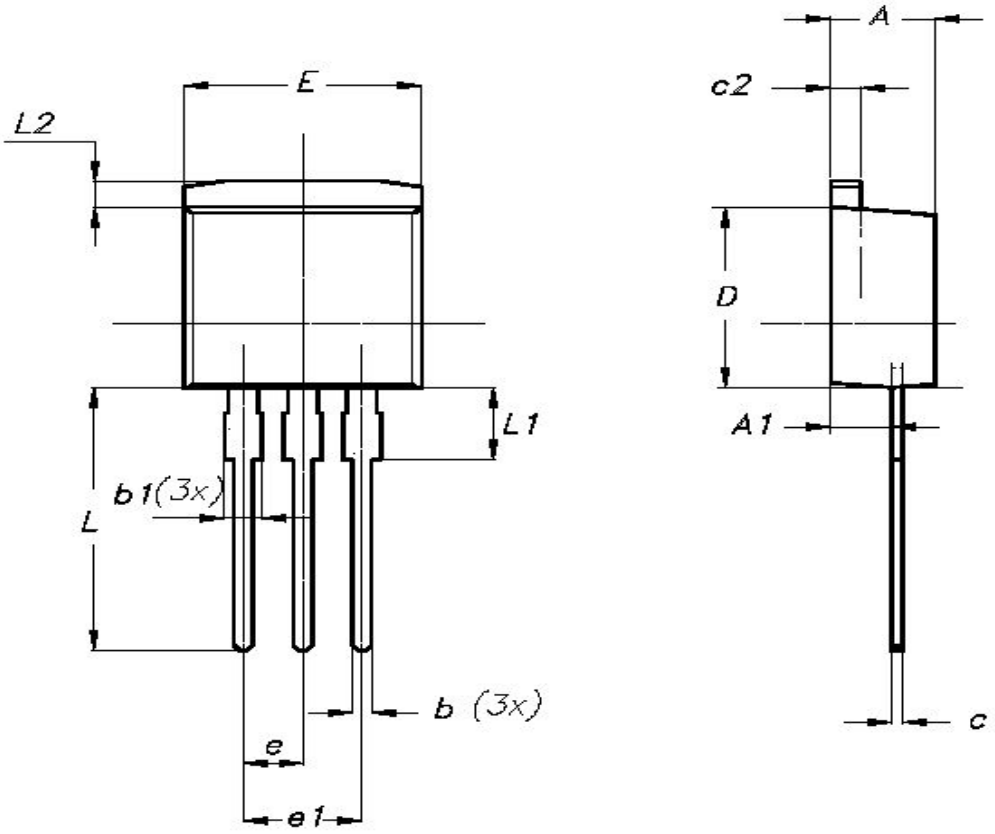


TO-262 封装机械尺寸

TO-262 MECHANICAL DATA

单位：毫米/UNIT：mm

符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	3.80		4.80	e		2.54	
A1	2.00		2.80	e1			5.30
b	0.60		1.00	E	9.90		10.70
b1	1.20		1.40	L	12.50		14.50
c	0.40		0.70	L1	0.80	1.00	1.20
c2	1.10		1.40	L2			1.50
D			9.60				

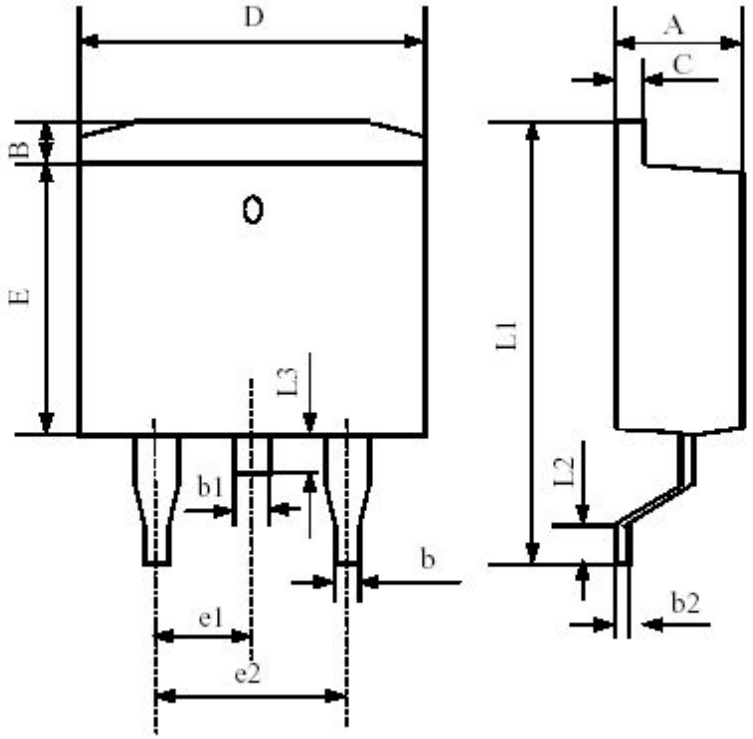


TO-263 封装机械尺寸

TO-263(D2PAK) MECHANICAL DATA

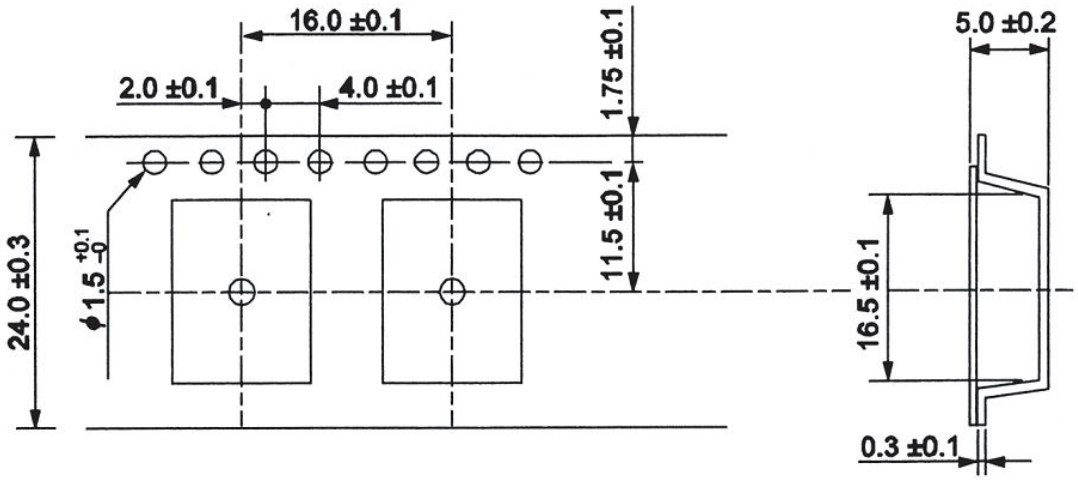
单位：毫米/UNIT：mm

符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	4.42		4.72	E	8.99		9.29
B	1.22		1.32	e1	2.44		2.64
b	0.76		0.86	e2	4.98		5.18
b1	1.22		1.32	L1	15.19		15.79
b2	0.33		0.43	L2	2.29		2.79
C	1.22		1.32	L3	1.30		1.75
D	9.95		10.25				

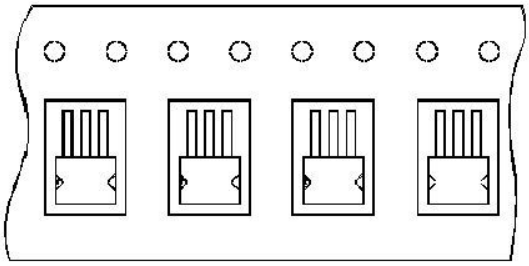


TO-263 编带规格尺寸
TO-263 TAPE AND REEL DATA

单位:毫米/UNIT：mm



使用供带方向/USER DIRECTION OF FEED



编带器件定位示意图/UNIT ORIENTATION