

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	5N65
▶ Overseas	Part Number	5N65
▶ Equivalent	Part Number	5N65

EV is the abbreviation of name EVVO

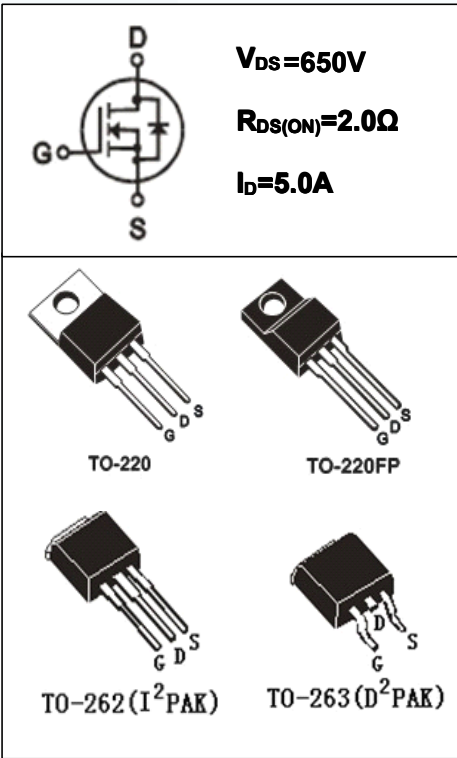
N-沟道功率 MOS 管

●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
源电压 Drain-source Voltage	V _{DS}	650	V
栅电压 gate-source Voltage	V _{GS}	30±	V
漏极电流 Continuous Drain Current TC=25°C	I _D	5.0	A
漏极电流 Continuous Drain Current TC=100°C	I _D	3.15	A
最大脉冲电流 Drain Current Pulsed ①	I _{DM}	20	A
耗散功率 Power Dissipation	P _{tot}	TO-220:120	W
		TO-220FP:50	
		TO-262/263:120	
最高结温 Junction Temperature	T _j	150	°C
存储温度 Storage Temperature	T _{STG}	-55-150	°C
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	E _{AS}	210	mJ



Tc=25

●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
源击穿电压 Drain-source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA		650		V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	BVΔ _{DSS/ΔTj}	I _D =250uA, Referenced to C° 25		0.6		V/°C
栅极开启电压 Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250μA	2.0		4.0	V
- 漏源漏电流 Drain-source Leakage Current	I _{DSS}	V _{DS} =650V, V _{GS} =0V, T _j =25°C			10	μA
		V _{DS} =480V, V _{GS} =0V, T _j =125°C			100	μA
跨导 Forward Transconductance	g _{fs}	V _{DS} =40V, I _D =2.5A ③		4.0		S

N-沟道功率 MOS 管

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
栅极漏电流 Gate-body Leakage Current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 30V$			± 100	nA
源漏通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 2.5A$ ③		1.5	2.0	Ω
输入电容 Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		730		pF
输出电容 Output Capacitance	C_{oss}			25		
反向传输电容 Reverse transfer Capacitance	C_{rss}			16		
关断延迟 Turn -Off Delay Time	$T_d(off)$	$V_{DD} = 300V, I_D = 5.0A$ $R_G = 25\Omega$ ③		38		ns
栅极电荷 Total Gate Charge	Q_g	$I_D = 5.0A, V_{DS} = 480V$ $V_{GS} = 10V$ ③		15		nC
栅源电荷 Gate-to-Source Charge	Q_{gs}			3.7		nC
栅漏电荷 Gate-to-Drain Charge	Q_{gd}			4.8		nC
二极管正向电流 Continuous Diode Forward Current	I_S				5.0	A
二极管正向压降 Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, I_S = 5.0A$ $V_{GS} = 0V$ ③			1.4	V
反向恢复时间 Reverse Recovery Time	t_{rr}	$T_J = 25^\circ C, I_f = 5.0A$ $di/dt = 100A/\mu s$ ③		270		ns
反向恢复电荷 Reverse Recovery Charge	Q_{rr}			1.9		uC

●热特性

● Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX			单位 UNIT
		TO-220	TO-220FP	TO-262/263	
壳 热阻结 Thermal Resistance Junction-case	R_{thJC}	1.04	2.50	1.04	/WC
环境 热阻结 Thermal Resistance Junction-ambient	R_{thJA}	62.5	62.5	62.5	/WC

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 初始结温=25°C, $V_{DD} = 50V$, $L = 18.9mH$, $R_G = 25\Omega$, $I_{AS} = 5.0A$ Starting $T_J = 25^\circ C$, $V_{DD} = 50V$, $L = 18.9mH$, $R_G = 25\Omega$, $I_{AS} = 5.0A$ ③ 脉冲测试：脉冲宽度 $\leq 300\mu s$ ，占空比 $\leq 2\%$ Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

N-沟道功率 MOS 管

● 特性曲线

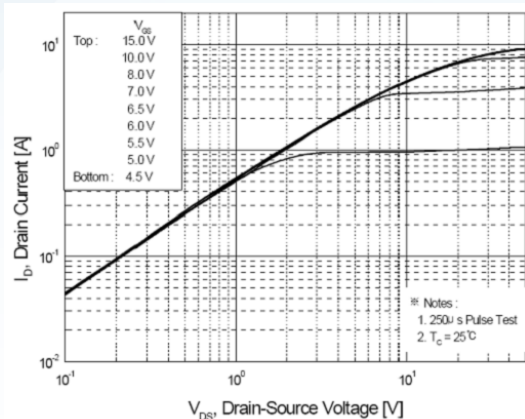


图 1 输出特性曲线, $T_c=25^\circ\text{C}$

Fig1 Typical Output Characteristics, $T_c=25^\circ\text{C}$

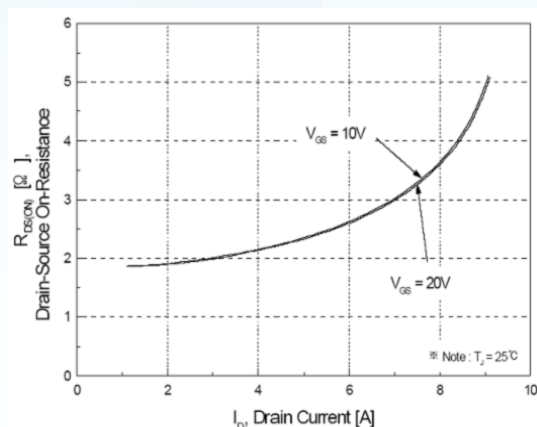


图 2 导通电阻与漏极电流和栅极电压曲线

Fig2 On-Resistance Vs. Drain Current and Gate Voltage

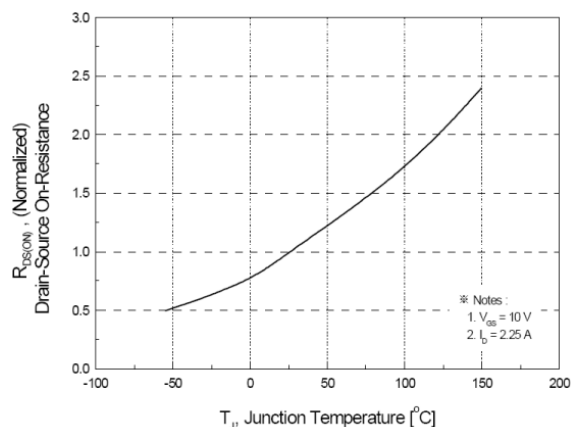


图 3 导通电阻与温度曲线

Fig3 Normalized On-Resistance Vs. Temperature

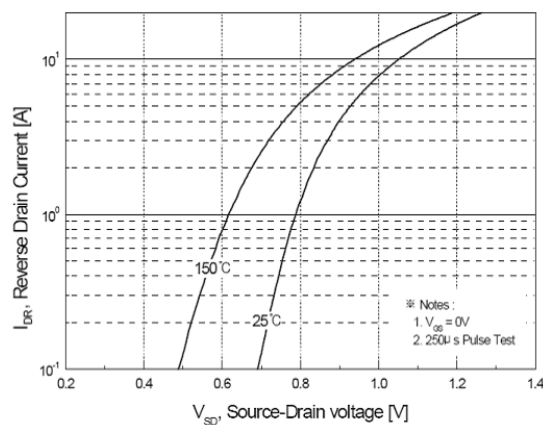


图 4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

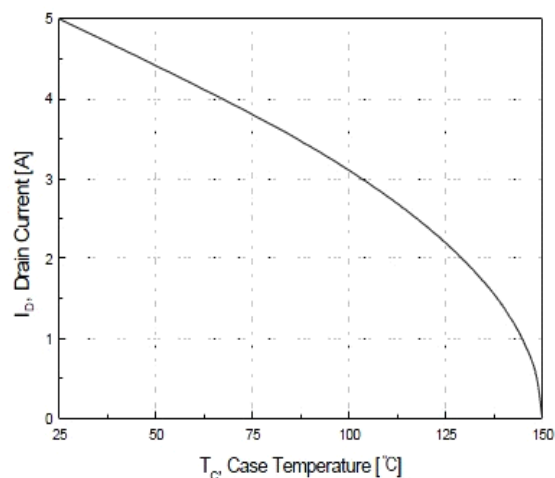


图 5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs. Case Temperature

N-沟道功率 MOS 管

● 特性曲线

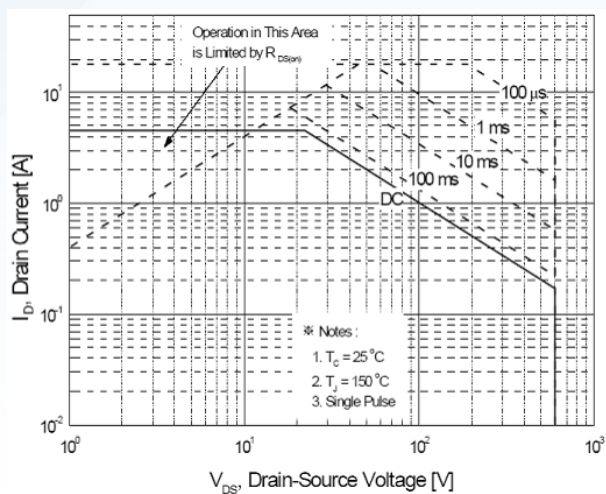


图 6-1 5N65(TO-220)

最大安全工作区曲线

Fig6-1 Maximum Safe Operating Area

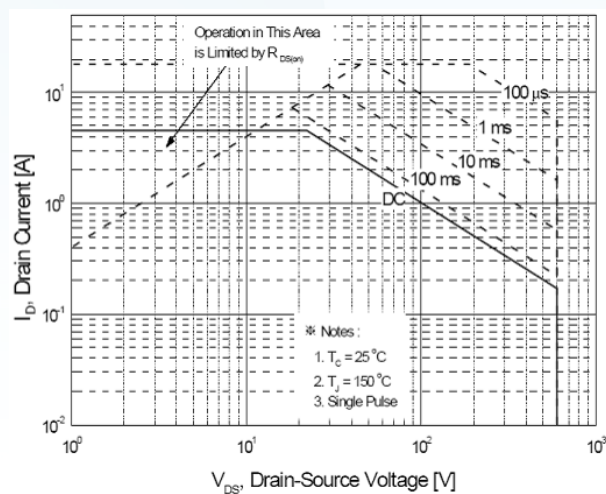


图 6-2 5N65(TO-220FP)

最大安全工作区曲线

Fig6-2 Maximum Safe Operating Area

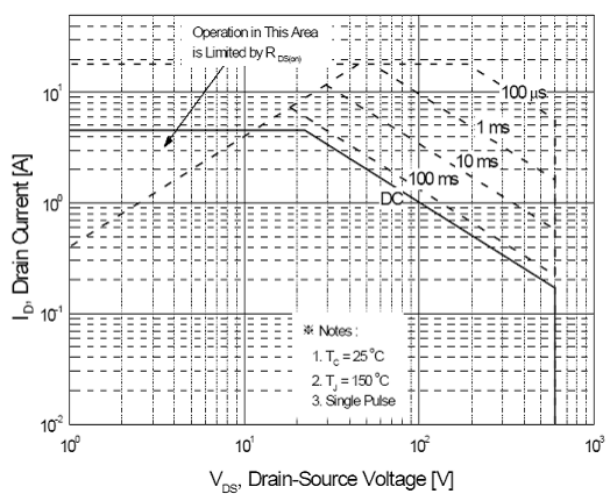


图 6-3 5N65(TO-262/263)

最大安全工作区曲线

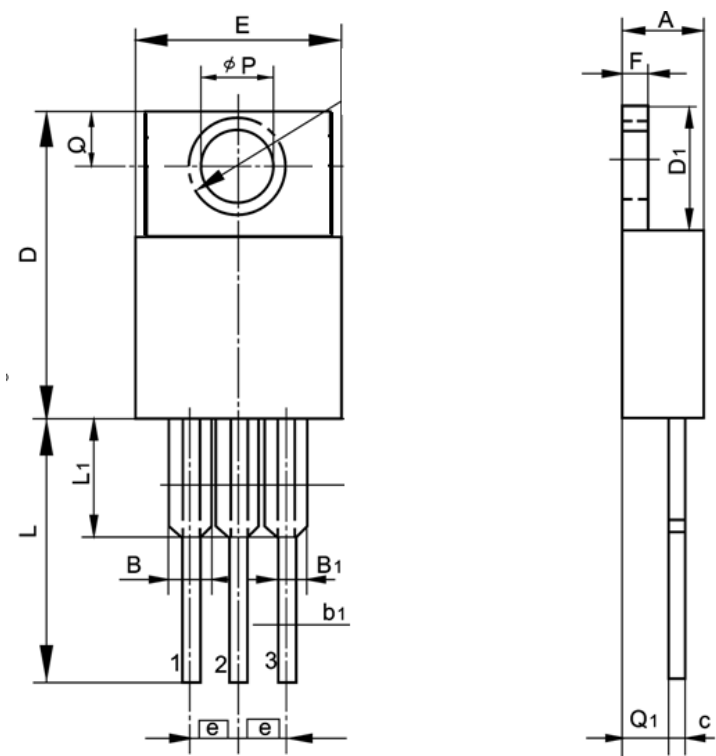
Fig6-3 Maximum Safe Operating Area

N-沟道功率 MOS 管

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
				φ P	3.60		3.90

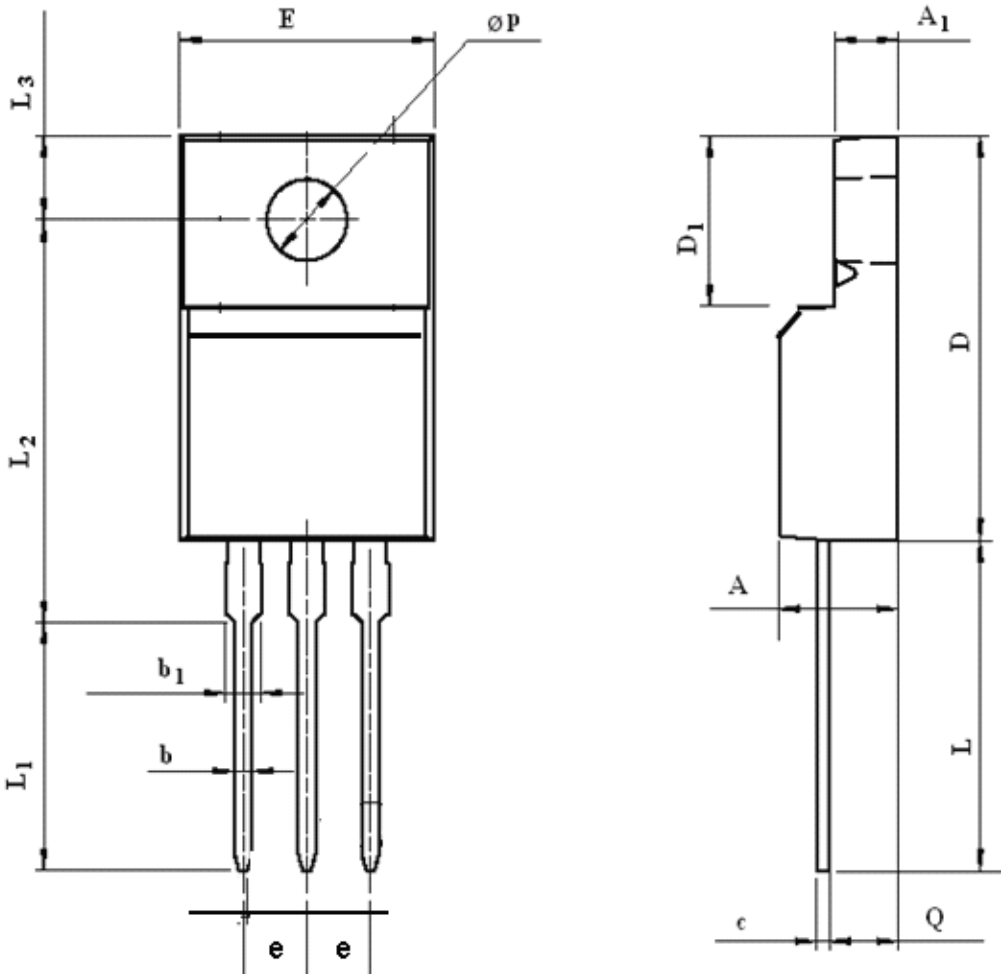


N-沟道功率 MOS 管

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		2.54	
A ₁	2.30		2.90	L	12.50		14.30
b	0.45		0.90	L ₁	9.10		10.05
b ₁	1.10		1.70	L ₂	15.00		16.00
c	0.35		0.90	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
E	9.60		10.30				

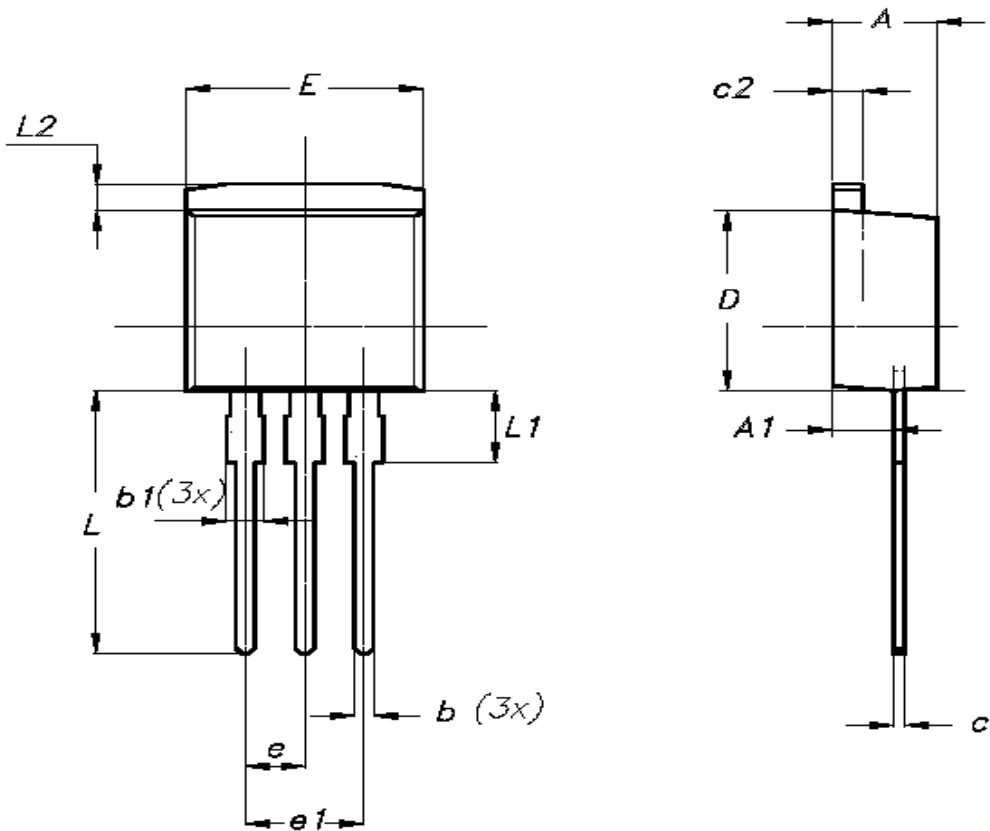


N-沟道功率 MOS 管

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				

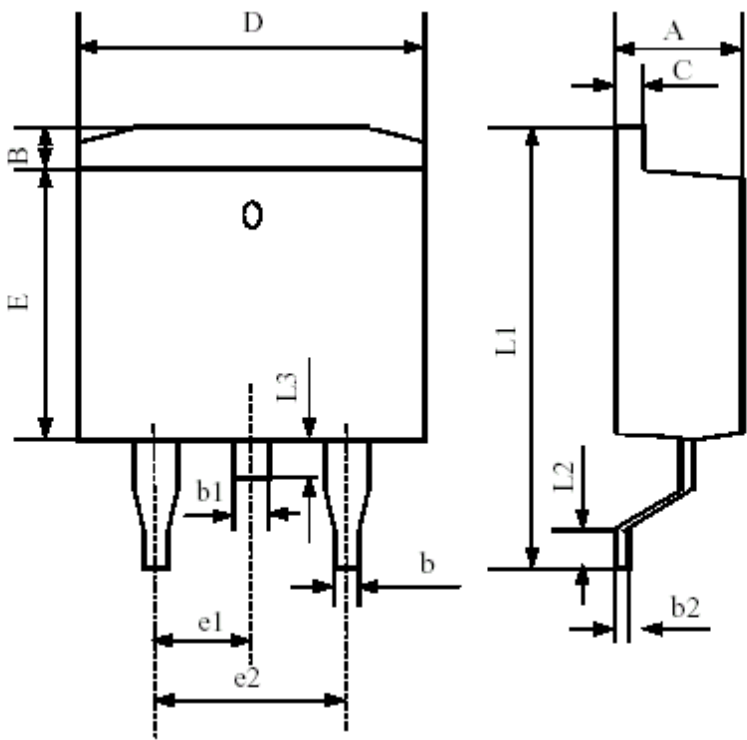


N-沟道功率 MOS 管

TO-263 封装机械尺寸
TO-263(D2PAK) MECHANICAL DATA

单位：毫米/UNIT：mm

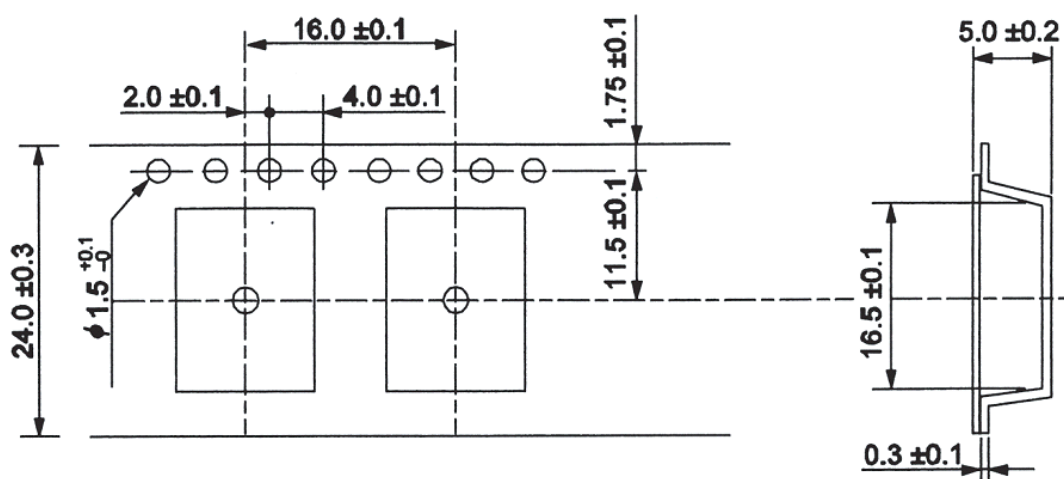
符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	4.42		4.72	E	8.99		9.29
B	1.22		1.32	e1	2.44		2.64
b	0.76		0.86	e2	4.98		5.18
b1	1.22		1.32	L1	15.19		15.79
b2	0.33		0.43	L2	2.29		2.79
C	1.22		1.32	L3	1.30		1.75
D	9.95		10.25				



N-沟道功率 MOS 管

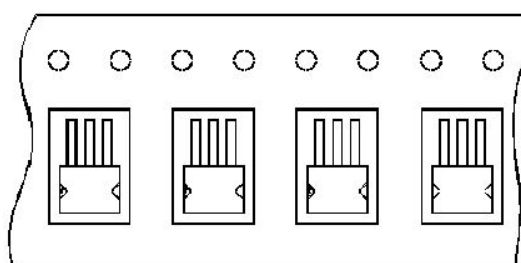
TO-263 编带规格尺寸
TO-263 TAPE AND REEL DATA

单位:毫米/UNIT: mm



/USER

使用供带方向/USER DIRECTION OF FEED



编带器件定位示意图/UNIT ORIENTATION

Disclaimer

EVVOSEMI ("EVVO") reserves the right to make corrections, enhancements, improvements, and other changes to its products and services at any time, and to discontinue any product or service without notice.

EVVO warrants the performance of its hardware products to the specifications applicable at the time of sale in accordance with its standard warranty. Testing and other quality control techniques are used as deemed necessary by EVVO to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Customers should obtain and confirm the latest product information and specifications before final design, purchase, or use. EVVO makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does EVVO assume any liability for application assistance or customer product design. EVVO does not warrant or accept any liability for products that are purchased or used for any unintended or unauthorized application.

EVVO products are not authorized for use as critical components in life support devices or systems without the express written approval of EVVOSEMI.

The EVVO logo and EVVOSEMI are trademarks of EVVOSEMI or its subsidiaries in relevant jurisdictions. EVVO reserves the right to make changes without further notice to any products herein.