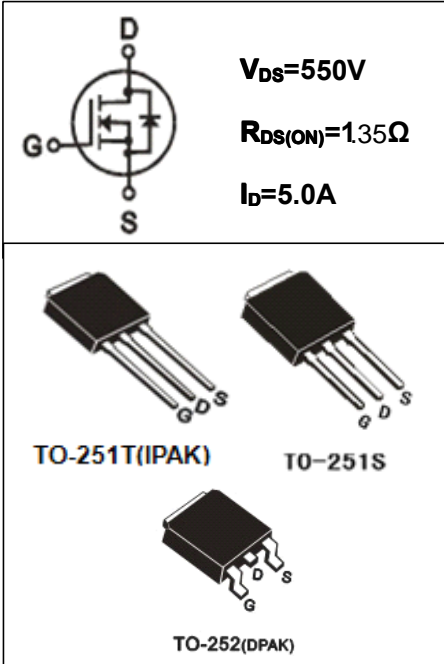


- **特点:** 导通电阻低 开关速度快 输入阻抗高 符合RoHS规范
- **FEATURES:** ■ LOW ON-RESISTANCE ■ FAST SWITCHING ■ HIGH INPUT RESISTANCE ■ RoHS COMPLIANT
- **应用:** 电子镇流器 电子变压器 开关电源
- **APPLICATION:** ■ ELECTRONIC BALLAST ■ ELECTRONIC TRANSFORMER ■ SWITCH MODE POWER SUPPLY

● **最大额定值 (Tc=25°C)**

● **Absolute Maximum Ratings (Tc=25°C) TO-251T/251S/252**

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT	
漏-源电压 Drain-source Voltage	V _{DS}	550	V	 <p>V_{DS}=550V R_{DS(ON)}=1.35Ω I_D=5.0A</p> <p>TO-251T(IPAK) TO-251S</p> <p>TO-252(DPAK)</p>
栅-源电压 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	3.0*	A	
最大脉冲电流 Drain Current — Pulsed ①	I _{DM}	20*	A	
耗散功率 Power Dissipation	P _{tot}	50	W	
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}	280	mJ	

*漏极电流由最高结温限制

*Drain current limited by maximum junction temperature

● **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	500			V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _j	I _D =250uA, Referenced to 25°C		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} =500V, V _{GS} =0V, T _j =25°C			25	μA
		V _{DS} =400V, V _{GS} =0V, T _j =125°C			250	μA
跨导 Forward Transconductance	g _{fs}	V _{DS} =15V, I _D =2.5A ③	2.4			S

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
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 2.5A$ ③		1.35	1.5	Ω
输入电容 Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		560		pF
输出电容 Output Capacitance	C_{oss}			45		
反向传输电容 Reverse transfer Capacitance	C_{rss}			17		
关断延迟 Turn -Off Delay Time	$T_d(off)$	$V_{DD} = 300V, I_D = 4.0A$ $R_G = 25\Omega$ ③		20		ns
栅极电荷 Total Gate Charge	Q_g	$I_D = 5.0A, V_{DS} = 480V$ $V_{GS} = 10V$ ③		26		nC
栅源电荷 Gate-to-Source Charge	Q_{gs}			4		nC
栅漏电荷 Gate-to-Drain Charge	Q_{gd}			15		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			1.6	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		220		ns
反向恢复电荷 Reverse Recovery Charge	Q_{rr}			1.0		μC

●热特性

●Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX	单位 UNIT
热阻结-壳 Thermal Resistance Junction-case	R_{thJC}	2.50	$^\circ C/W$
热阻结-环境 Thermal Resistance Junction-ambient	R_{thJA}	110.0	$^\circ C/W$

注释(Notes):

- ① 脉冲宽度：以最高结温为限制
 Repetitive rating: Pulse width limited by maximum junction temperature
- ② 初始结温= $25^\circ C$, $V_{DD} = 50V$, $L = 24mH$, $R_G = 25\Omega$, $I_{AS} = 5.0A$
 Starting $T_j = 25^\circ C$, $V_{DD} = 50V$, $L = 24mH$, $R_G = 25\Omega$, $I_{AS} = 5.0A$
- 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 $\leq 2\%$

● 特性曲线

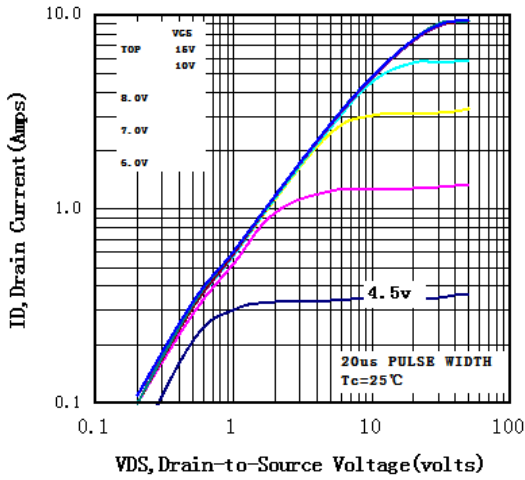


图1 输出特性曲线, $T_c=25^\circ\text{C}$

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

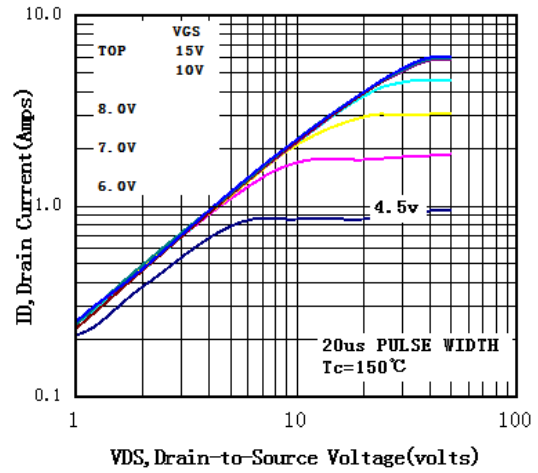


图2 输出特性曲线, $T_c=150^\circ\text{C}$

Fig2 Typical Output Characteristics, $T_c=150^\circ\text{C}$

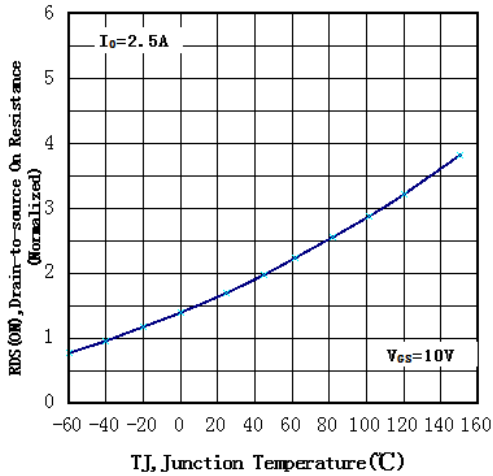


图3 归一化导通电阻与温度曲线

Fig3 Normalized Resistance Vs. Temperature

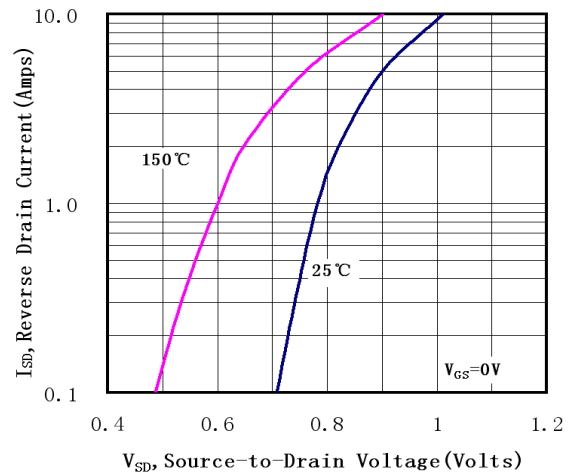


图4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

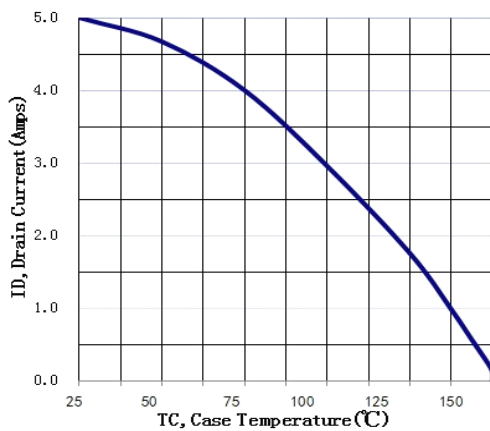


图5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs. Case Temperature

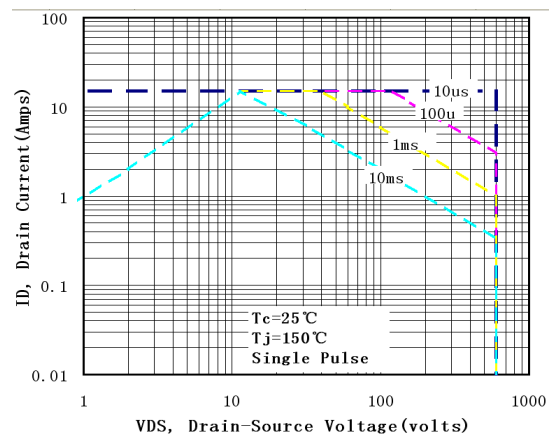


图6 最大安全工作区曲线

Fig6 Maximum Safe Operating Area

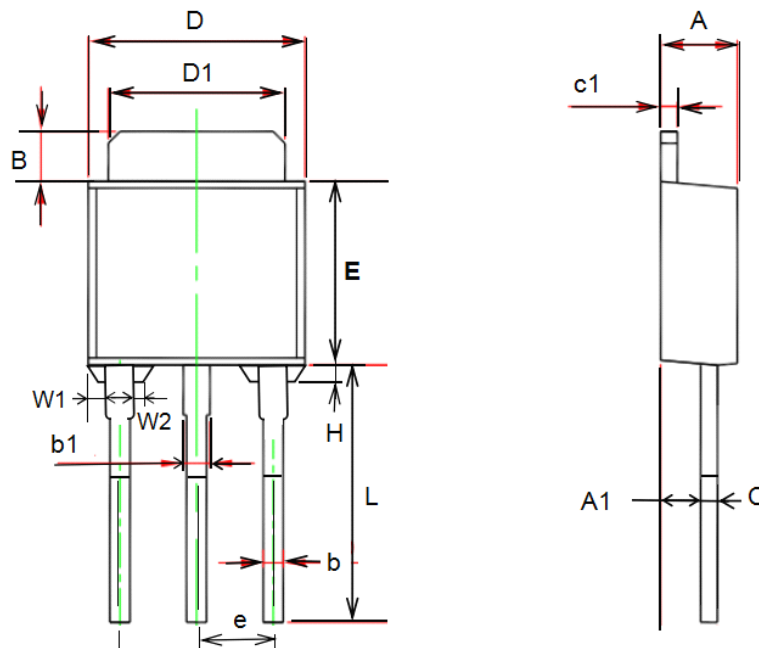
TO-251T 封装机械尺寸

TO-251T (IPAK) MECHANICAL DATA

单位:毫米/UNIT: mm

符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	2.10		2.50
A ₁	0.95		1.30
B	0.80		1.25
b	0.50		0.80
b ₁	0.70		0.80
c	0.45		0.70
c ₁	0.45		0.70
D	6.35		6.80
D ₁	5.10		5.50
E	5.30		6.30
e	2.25	2.30	2.35
L	7.00		9.20
H	0.35		0.45
W1	0.30		0.50
W2	0.20		0.40

[S/L]

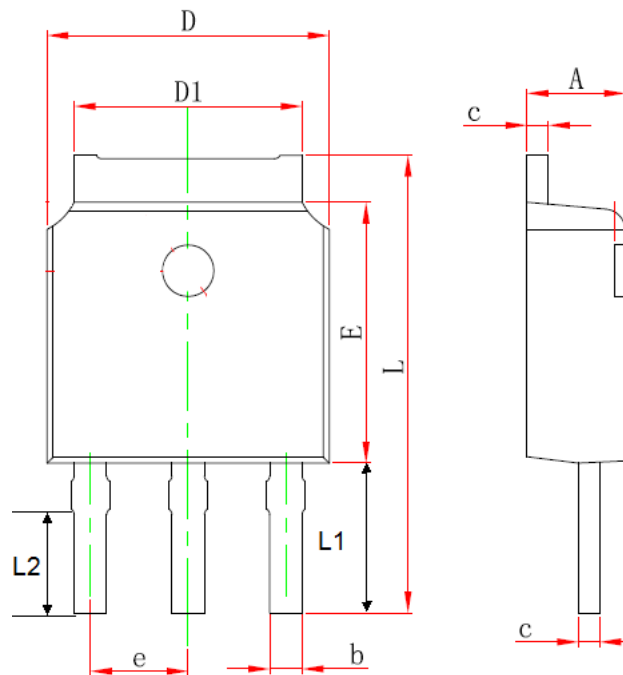


TO-251S 封装机械尺寸

TO-251S (IPAK) MECHANICAL DATA

单位:毫米/UNIT: mm

符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	2.20		2.40
b	0.60		0.85
C	0.45	0.50	0.60
D	6.50		6.70
D1	5.10		5.50
E	5.9		6.20
e	2.18	2.29	2.38
L	11.00		12.40
L1	4.8		5.3
L2	3.5		4.2

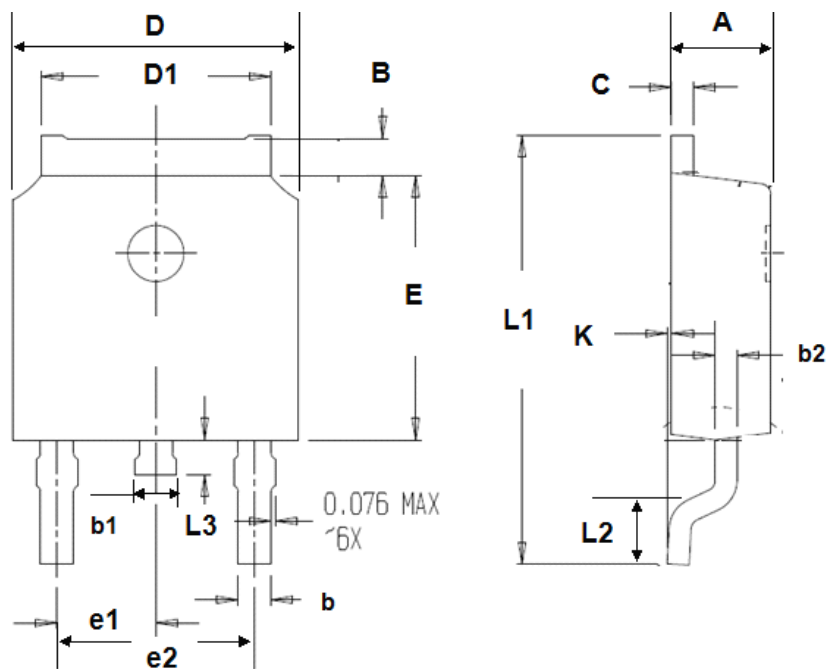


TO-252 封装机械尺寸

TO-252 MECHANICAL DATA

单位:毫米/UNIT: mm

符号 SYMBOL	最小值 min	最大值 max	符号 SYMBOL	最小值 min	最大值 max
A	2.10	2.50	B	0.85	1.25
b	0.50	0.80	b1	0.50	0.90
b2	0.45	0.70	C	0.45	0.70
D	6.30	6.75	D1	5.10	5.50
E	5.30	6.30	e1	2.25	2.35
L1	9.20	10.60	e2	4.45	4.75
L2	0.90	1.75	L3	0.60	1.10
K	0.00	0.23			

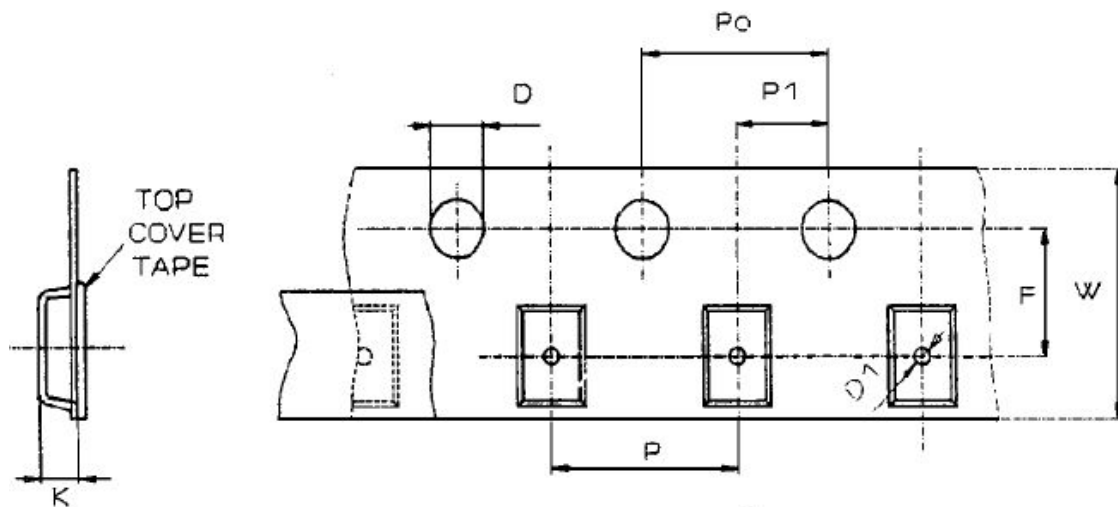


TO-252 编带规格尺寸

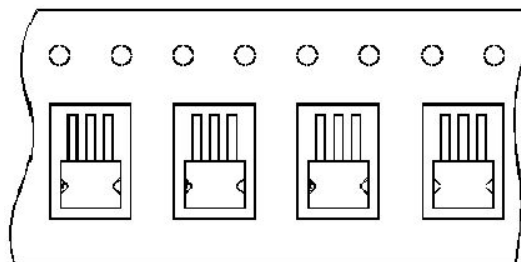
TO-252 TAPE AND REEL DATA

单位:毫米/UNIT: mm

符号 SYMBOL	最小值 min	最大值 max	符号 SYMBOL	最小值 min	最大值 max
W	16.0-0.3	16.0+0.3	F	7.5-0.1	7.5+0.1
P0	4.0-0.1	4.0+0.1	D	1.5-0.0	1.5+0.1
P	8.0-0.1	8.0+0.1	P1	2.0-0.1	2.0+0.1
K	2.65	2.80	D1	1.5-0.0	1.5+0.1



使用供带方向/USER DIRECTION OF FEED



编带器件定位/UNIT ORIENTATION