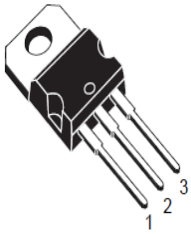
Three-terminal positive voltage regulator
OUTPUT CURRENT TO 1.2A
OUTPUT VOLTAGES OF 5; 6; 8; 9; 12V ; 15V ;
THERMAL OVERLOAD PROTECTION
SHORT CIRCUIT PROTECTION
OUTPUT TRANSITION SOA PROTECTION

1、 Absolute Maximum Ratings Tc=25℃

Symbol	Parameter	Value	UNIT
VI	Input Voltage	35	V
TOPR	Operating Temperature Range	-40 ～ +105	℃
TSTG	Storage Temperature Range	-65 ～+150	℃



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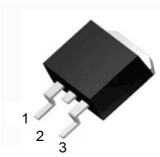
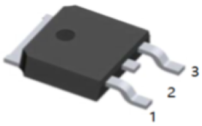


TO- 263-3



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1 Input 2 Gnd 3 Out

2、Electrical Characteristics （Tc＝25℃）Of 7805 (refer to the test circuits,TJ = -40 to 125℃ VI = 10V, IO = 500 mA, CI = 0.33 μF, CO = 0.1 μF unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		4.8	5	5.2	V
		IO = 5mA to 1A, PO ≤ 15W VI = 8V to 20V		4.75	5	5.25	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 7V to 25V			100	mV
			VI = 8V to 12V			50	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				100	mV
		TJ = +25℃ IO = 250mA to 750mA				50	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 8V to 25V				0.8	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			0.6		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.75		A

3、Electrical Characteristics （Tc＝25℃）Of 7806(refer to the test circuits,TJ = -40 to 125℃ VI = 11V，
IO = 500 mA，CI = 0.33 μF， CO = 0.1 μF unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		5.75	6	6.25	V
		IO = 5mA to 1A, PO ≤ 15W VI = 9V to 21V		5.7	6	6.3	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 8V to 25V			120	mV
			VI = 9V to 13V			60	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				120	mV
		TJ = +25℃ IO = 250mA to 750mA				60	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 9V to 25V				0.8	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			0.7		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.55		A

4、Electrical Characteristics （Tc=25℃）Of 7808(refer to the test circuits, TJ = -40 to 125℃ VI = 14V, IO = 500 mA, CI = 0.33 μF, CO = 0.1 μF unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		7.7	8	8.3	V
		IO = 5mA to 1A, PO ≤ 15W VI = 11.5V to 23V		7.6	8	8.4	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 10.5V to 25V			100	mV
			VI = 11V to 17V			80	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				160	mV
		TJ = +25℃ IO = 250mA to 750mA				80	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 11.5V to 25V				1	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			1		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.45		A

5、Electrical Characteristics （Tc＝25℃）Of 7809(refer to the test circuits，TJ = -40 to 125℃ VI = 15V，IO = 500 mA，CI = 0.33 μ F， CO = 0.1 μ F unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		8.64	9	9.36	V
		IO = 5mA to 1A, PO ≤ 15W VI = 11.5V to 26V		8.55	9	9.45	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 11.5V to 26V			180	mV
			VI = 12V to 18V			90	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				180	mV
		TJ = +25℃ IO = 250mA to 750mA				90	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 11.5V to 26V				1	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			1		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.4		A

6、Electrical Characteristics （Tc＝25℃）Of 7812 (refer to the test circuits, TJ = -40 to 125℃ VI = 19V, IO = 500 mA, CI = 0.33 μ F, CO = 0.1 μ F unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		11.5	12	12.5	V
		IO = 5mA to 1A, PO ≤ 15W VI =15.5V to 27V		11.4	12	12.6	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 14.5V to 30V			240	mV
			VI = 16V to 22V			120	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				240	mV
		TJ = +25℃ IO = 250mA to 750mA				120	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 15V to 30V				1	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			1.5		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.35		A

6、Electrical Characteristics （Tc＝25℃）Of 7815 (refer to the test circuits, TJ = -40 to 125℃ VI = 19V, IO = 500 mA, CI = 0.33 μ F, CO = 0.1 μ F unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		14.4	15	15.6	V
		IO = 5mA to 1A, PO ≤ 15W VI =15.5V to 27V		14.25	15	15.75	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 14.5V to 30V			300	mV
			VI = 16V to 22V			150	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				100	mV
		TJ = +25℃ IO = 250mA to 750mA				150	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 15V to 30V				1	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			1.5		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.23		A

7、Typical Characteristics

Figure 1: Dropout Voltage vs Junction Temperature

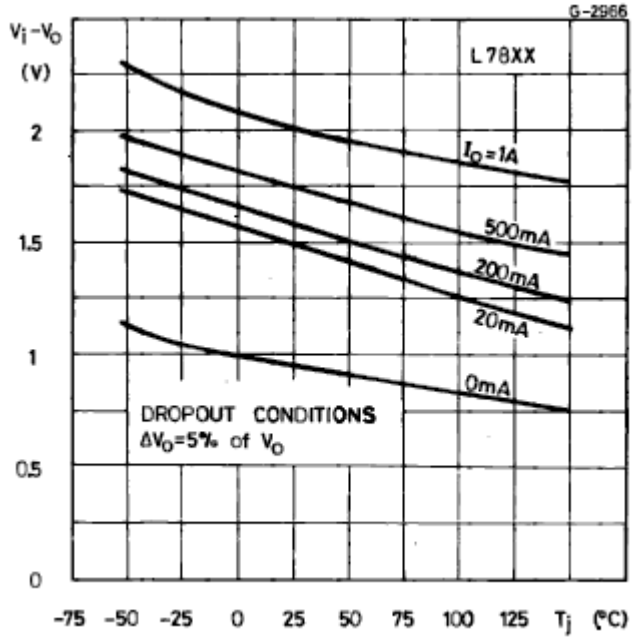


Figure 2: Peak Output Current vs Input/output Differential Voltage

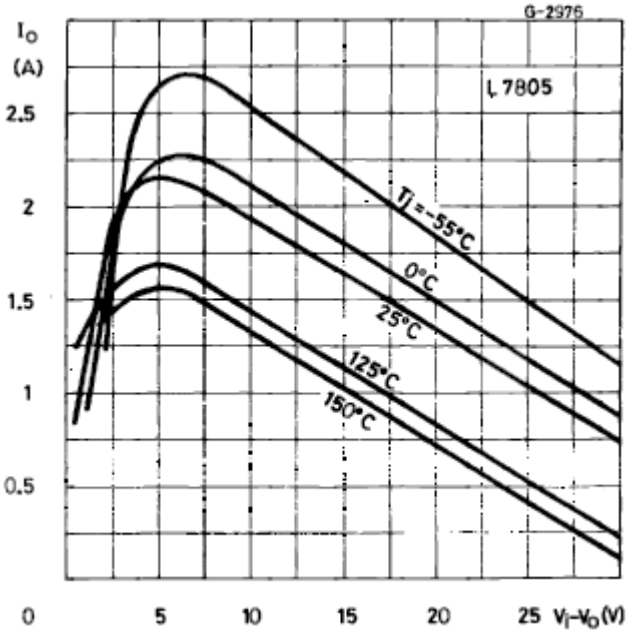


Figure3: Supply Voltage Rejection vs Frequency Temperature

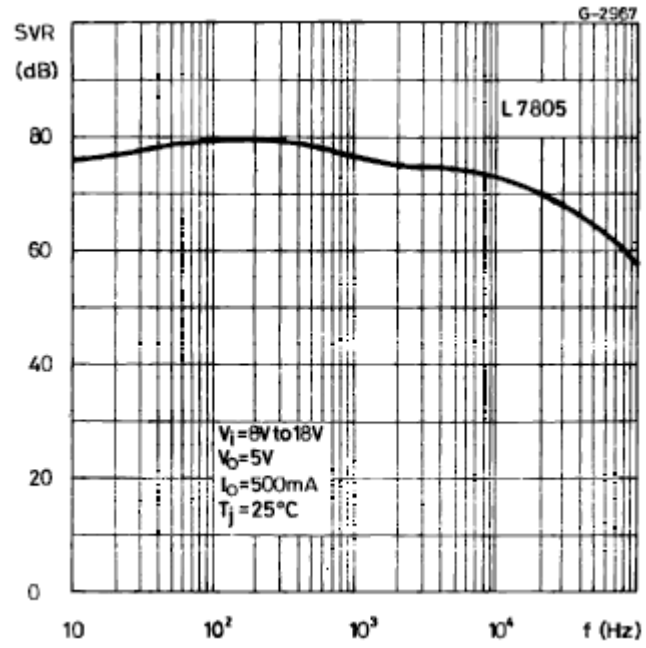


Figure 4: Quiescent Current vs Junction

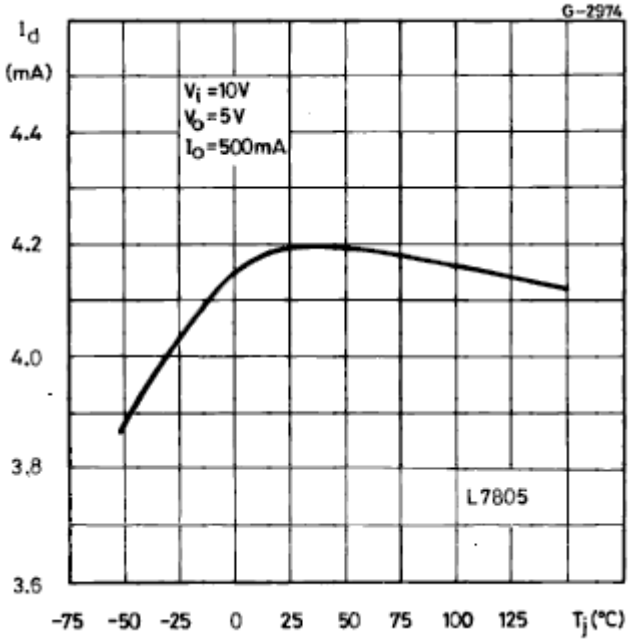


Figure 5: Output Voltage vs Junction Temperature

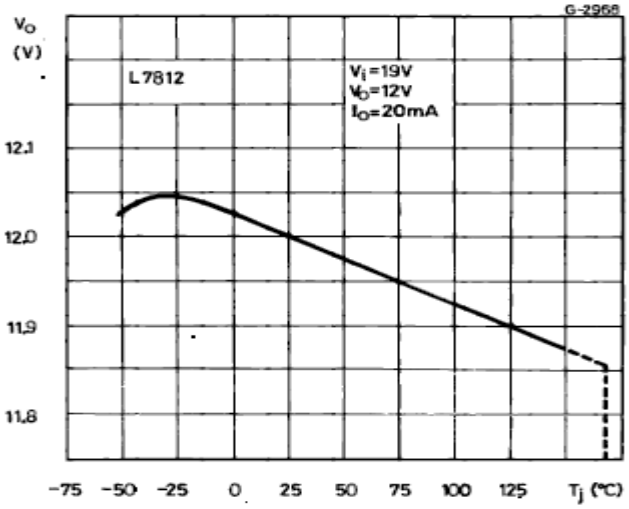


Figure 6: Load Transient Response

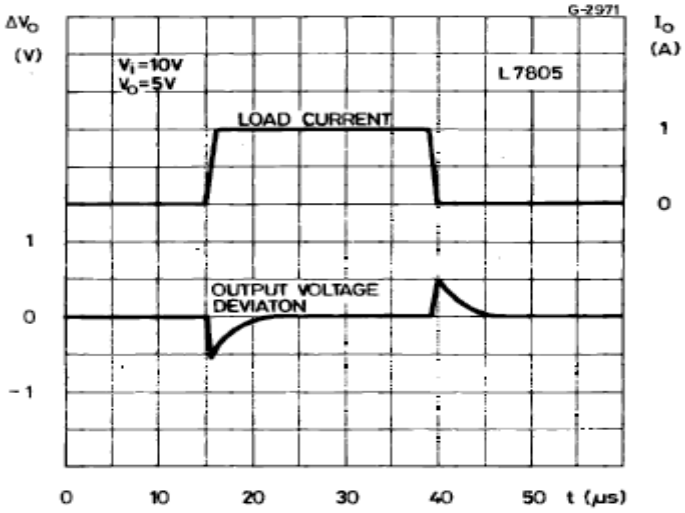


Figure 7: Output Impedance vs Frequency

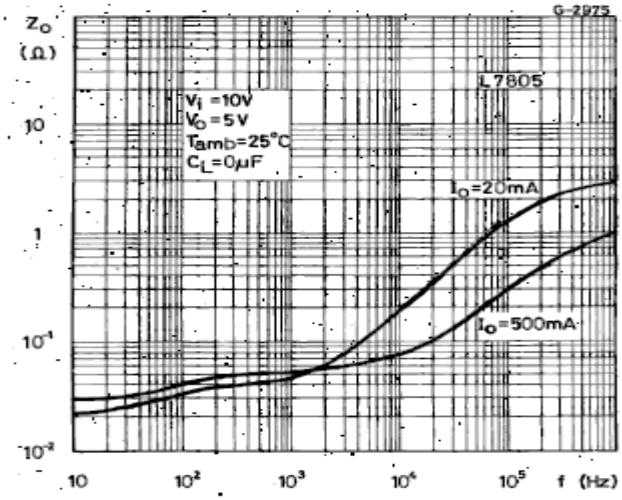


Figure 8: Line Transient Response

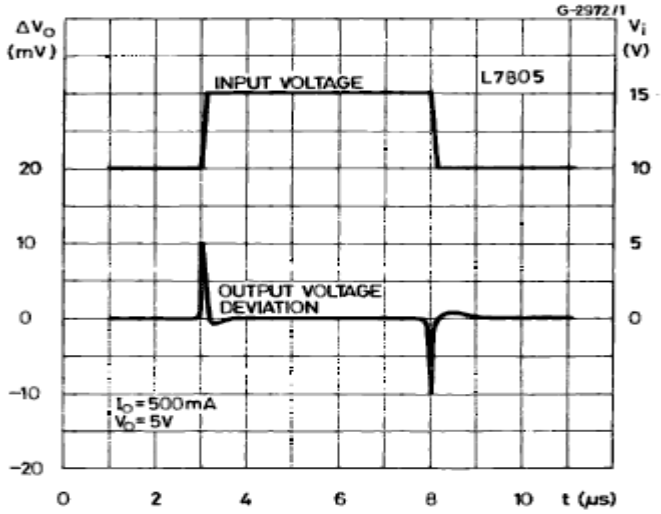
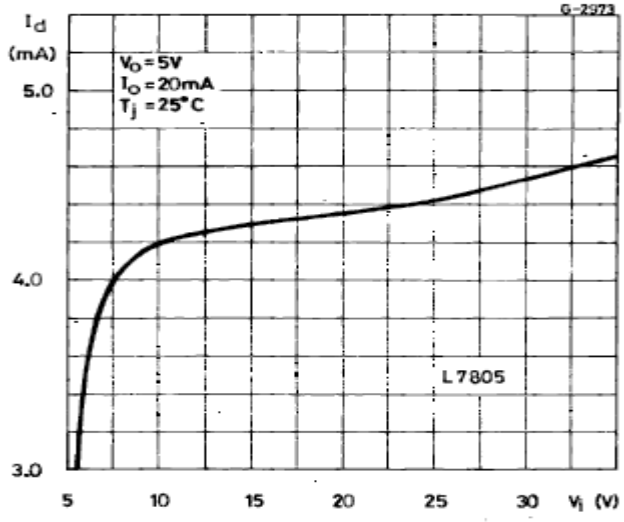


Figure 9: Quiescent Current vs Input Voltage



8、Package Demensions

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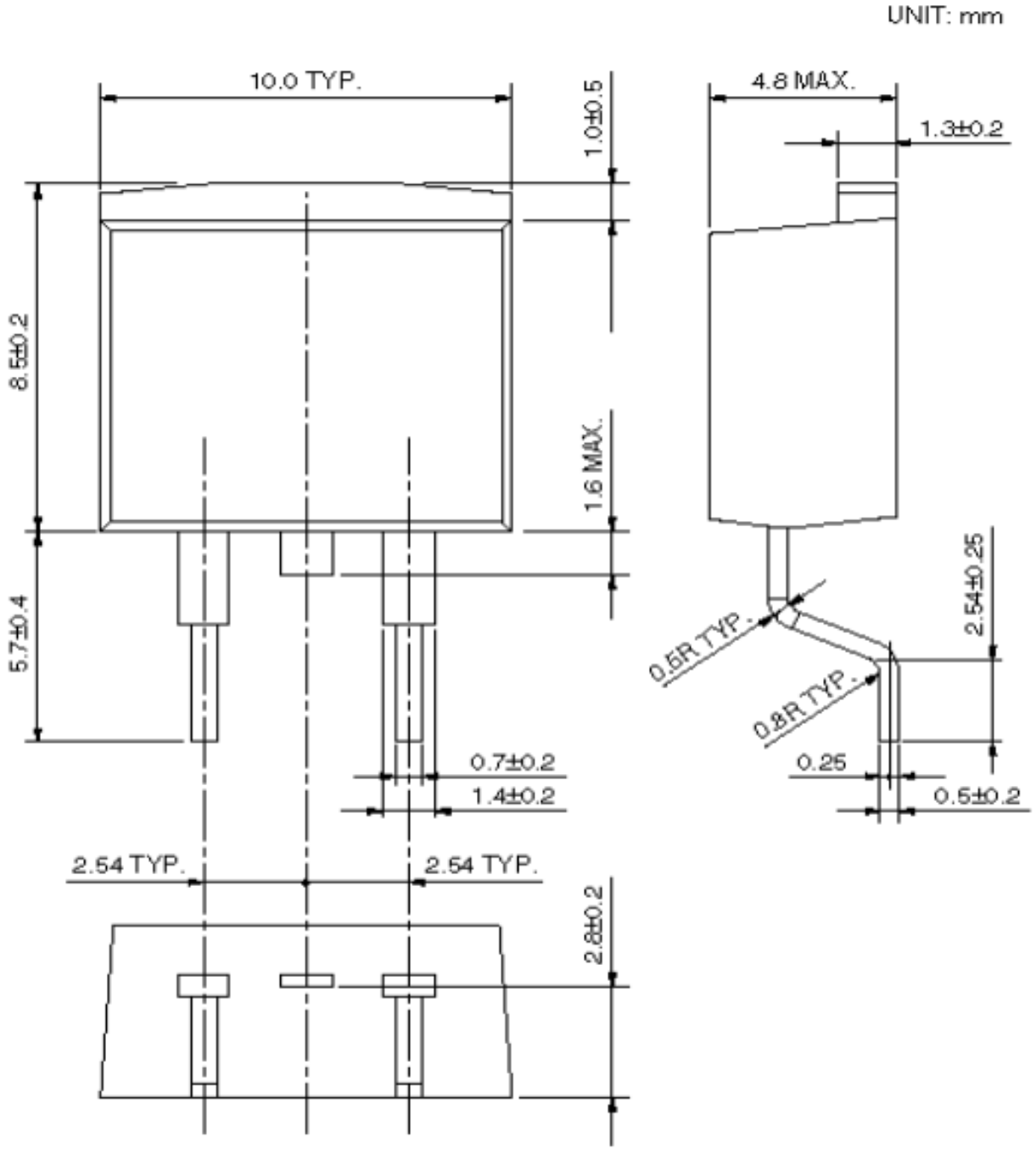
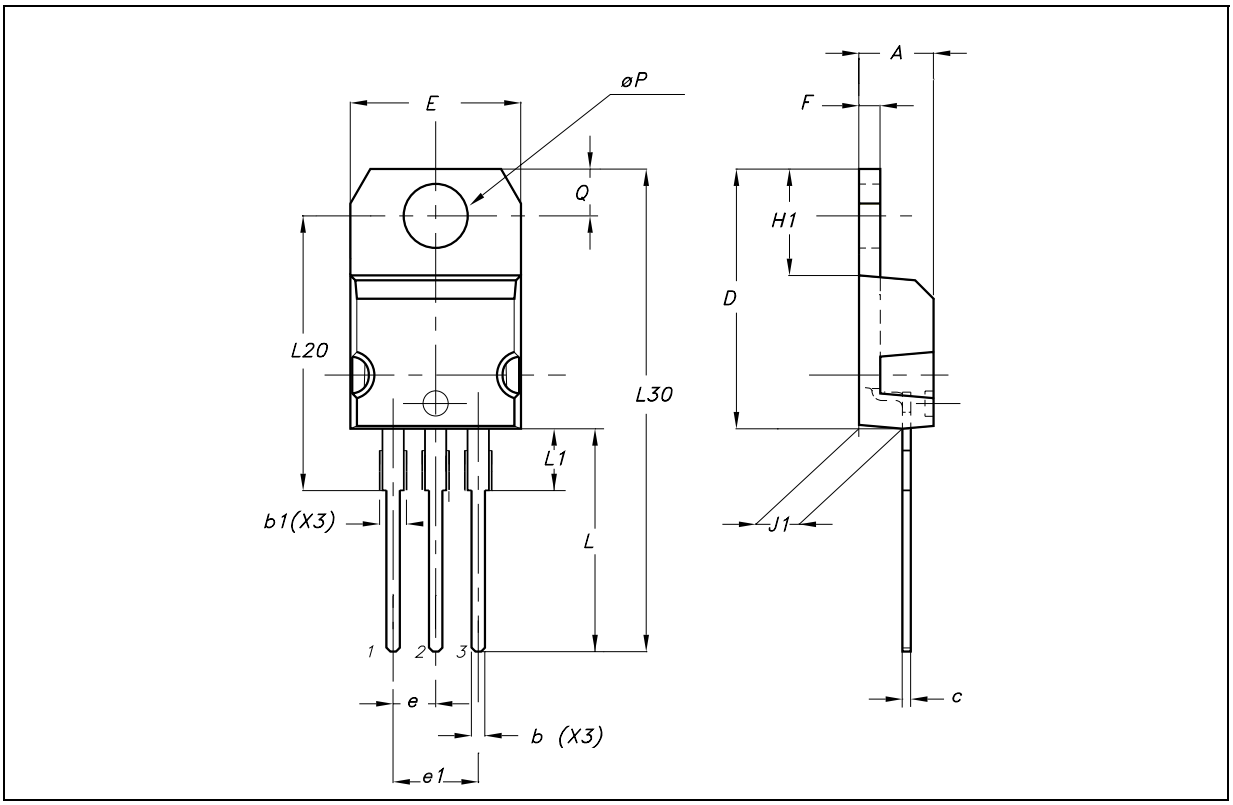


: The area without solder plated

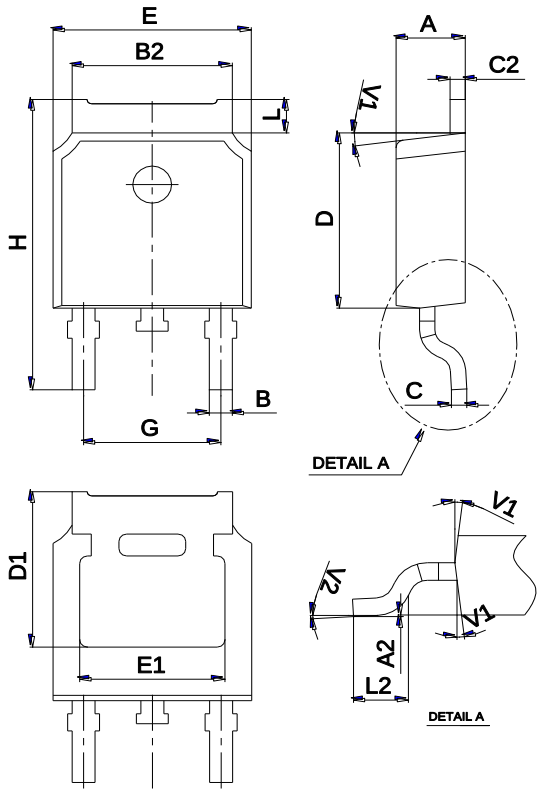
9、Package Demensions

TO-220

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
b	0.61		0.88	0.024		0.034
b1	1.15		1.70	0.045		0.067
c	0.49		0.70	0.019		0.027
D	15.25		15.75	0.600		0.620
E	10.0		10.40	0.393		0.409
e	2.4		2.7	0.094		0.106
e1	4.95		5.15	0.194		0.203
F	1.23		1.32	0.048		0.051
H1	6.2		6.6	0.244		0.260
J1	2.40		2.72	0.094		0.107
L	13.0		14.0	0.511		0.551
L1	3.5		3.93	0.137		0.154
L20		16.4			0.645	
L30		28.9			1.138	
ϕP	3.75		3.85	0.147		0.151
Q	2.65		2.95	0.104		0.116



Package Mechanical Data TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

information

Order code	Package	Baseqty	Deliverymode
UMW L78xxCDT	TO-252	2500	Tape and reel
UMW L78xxCD2T	TO-263	1000	Tape and reel
UMW L78xxCV	TO-220	1000	Tube and box