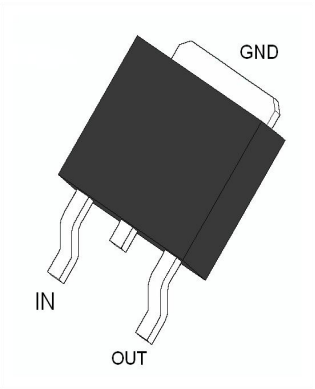
78M05

3-terminal 5V 0.5A positive voltage regulator

1.Features

- Output Current up to 0.5A
- Output Voltages of 5V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating area (SOA)Protection

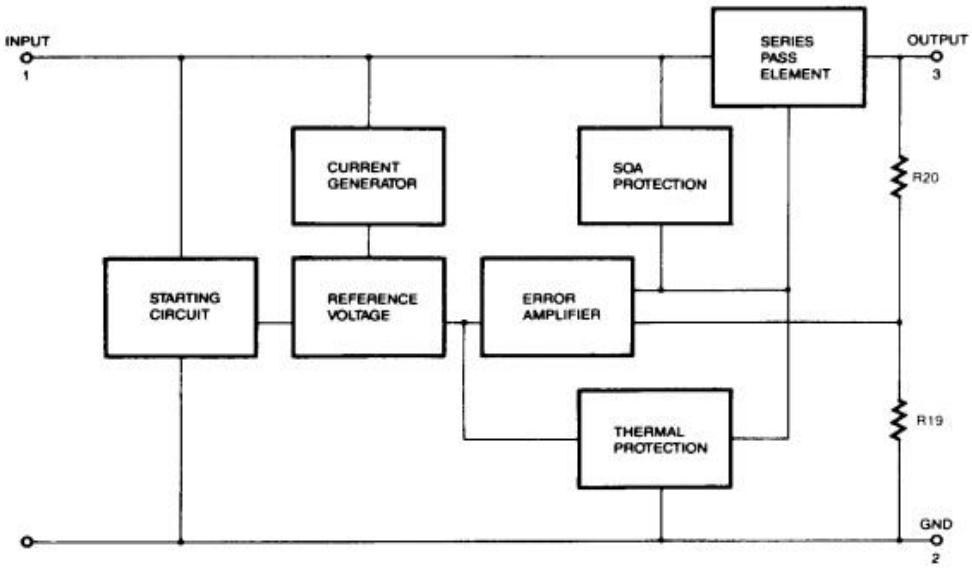
Case:TO-252



2.Mechanical Data

- Case:Molded Plastic,TO-252
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Mounting Position : Any.

3.Internal Block Digram



4.Maximum Ratings and Electrical Characteristics

Rating at 25℃ Cambient temperature unless otherwise specified

Parameters	Symbol	Value	Unit
Input Voltage	V_{IN}	35	V
Out put Voltage	V_O	5	V
Continuous total dissipation	P_D	1.25	W
Operating Temperature Range	T_{OPR}	0～+125	℃
Storage Temperature Range	T_{STG}	-55～+150	℃

5.Electrical Characteristics (TA=25℃ unless otherwise noted)

Parameters	Symbol	Cindition	Min	TYP	Max	Unit
Output Voltage	V_O	V_I=7～20V，I_O=5～350mA	4.8	5	5.2	V
		V_I=10V，I_O=5～350mA	4.8	5	5.2	V
Line Regulation	△ V_O	V_I=7～25V，Tj=25℃	-	-	100	mV
		V_I=～25V，Tj=25℃	-	-	50	mV
Load Regulation	△ V_O	I_O=5～500mA，Tj=25℃	-	-	100	mV
		I_O=5～200mA，Tj=25℃	-	-	50	mV
Quiescent Current	I_Q	Tj=25℃	-	-	6	mV
Quiescent Current Change	△ I_Q	I_O=5～350mA	-	-	0.5	mV
		I_O=200mA，V_I=8～18V	-	-	0.8	mV
Output Voltage Drift	△V /△T	I_O = 5mA T_J = 0 to +125 ℃	-	-0.5	-	mV/℃
Output Noise Voltage	V_N	$10H_Z$≤ f ≤$100KH_Z$	-	40	-	μV
Ripple Rejection	RR	f = 120Hz, I_O = 300mA V_I = 8 to 18V	62	-	-	dB
Dropout Voltage	V_d		-	1.7	-	V
Short Circuit Current	I_{SC}	T_J=+25 ℃, V_I= 35V	-	300	-	mA
Peak Current	I_{PK}		-	700	-	mA

Notes:
*Load and line regulation are specified at constant junction temperature. Change in Vo due to heating effects must be taken into account separately. Pulse testing with low duty is used.

7.Rating And Characteristic Curves

Fig.1 V_{OUT}-Ta

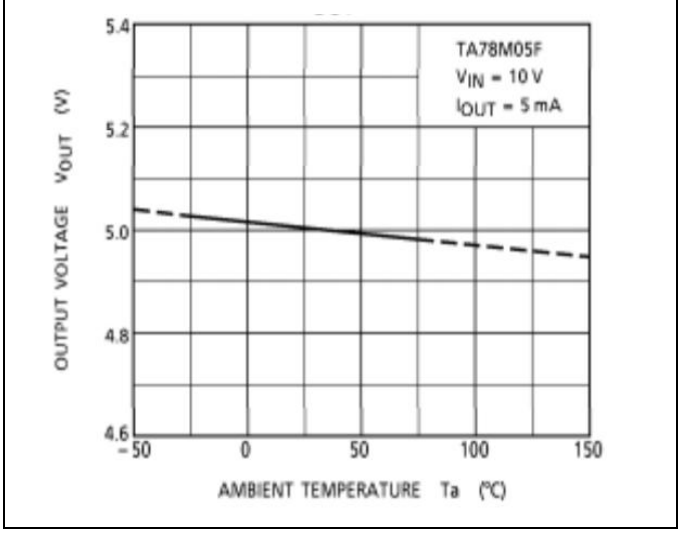


Fig.2 I_{SC}-V_{IN}

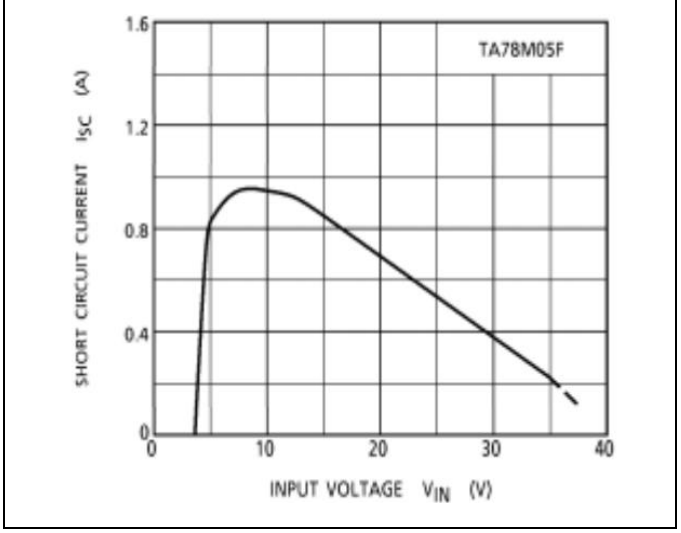


Fig.3 I_B-V_{IN}

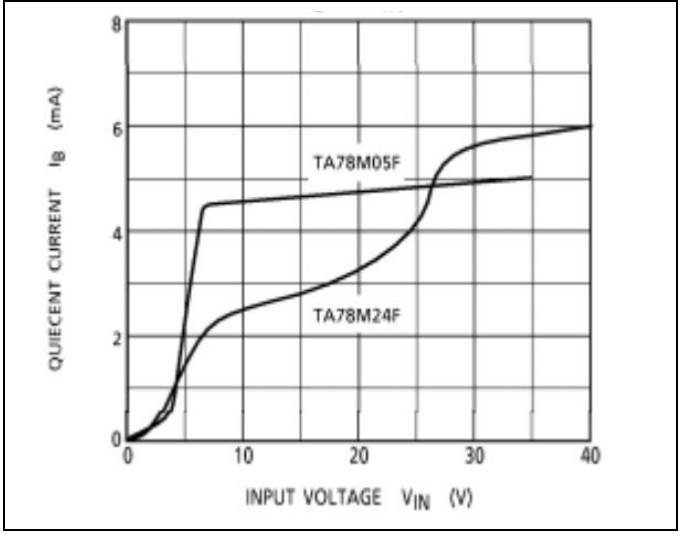


Fig.4 V_{OUT}-V_{IN}

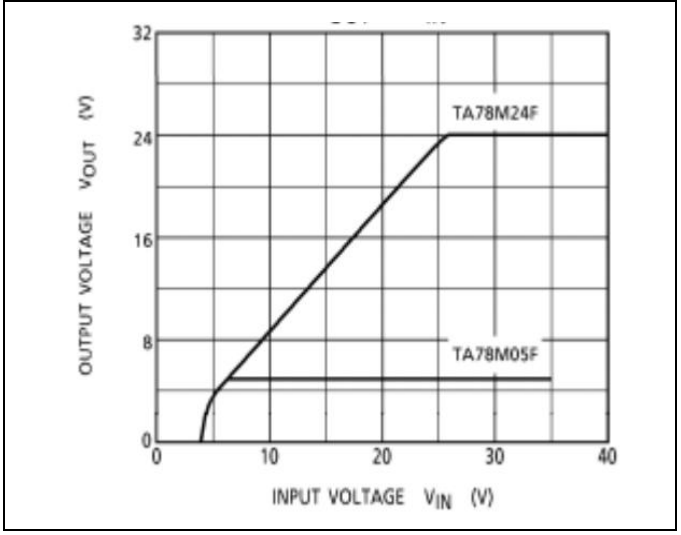


Fig.5 P_D-Ta

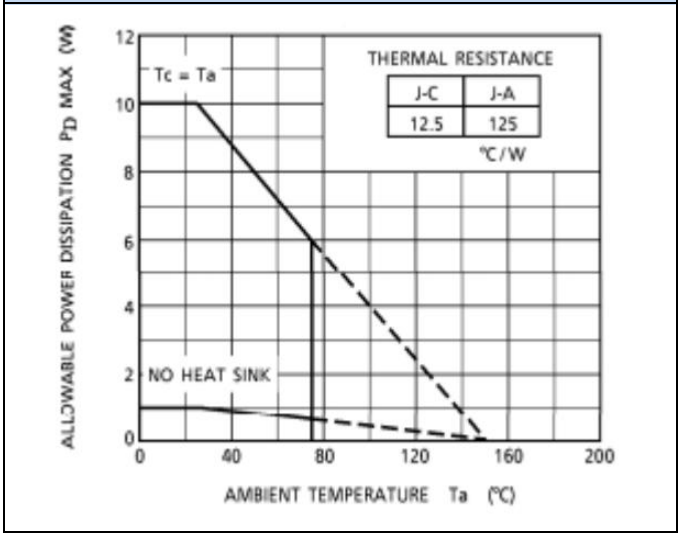
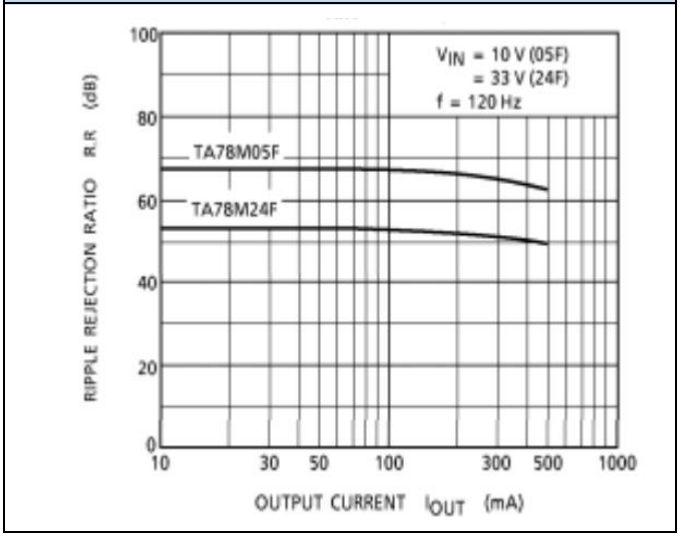
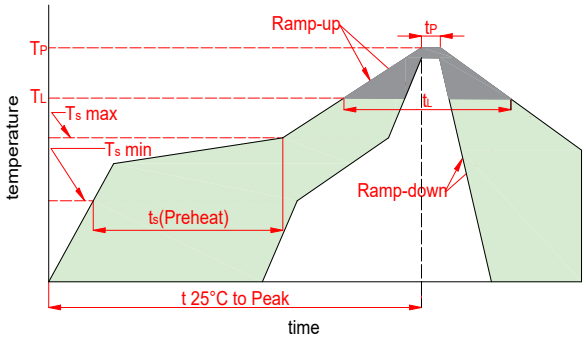


Fig.6 R.R-I_{OUT}

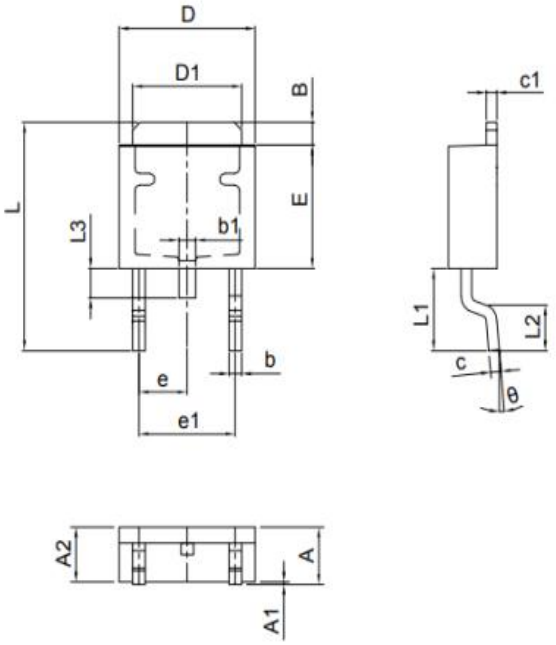


6. Soldering Parameters



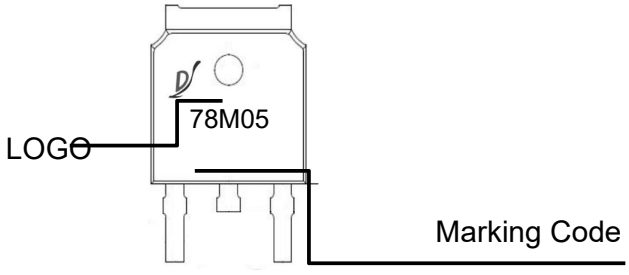
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s(min))	150℃
	Temp. max(T_s(min))	200℃
	Time(min to max)(t_s)	60~180s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_S(max) to T_L-Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		$260^{+0/-5}$℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_p)		8 minutes max
Do not exceed		260℃

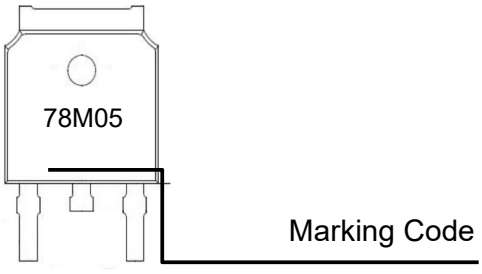
7.Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.091	0.098	2.30	2.50
A1	0.000	0.006	0.00	0.15
A2	0.089	0.094	2.25	2.40
B	0.047	0.063	1.20	1.60
b	0.020	0.028	0.50	0.70
b1	0.028	0.035	0.70	0.90
c	0.016	0.024	0.40	0.60
c1	0.016	0.024	0.40	0.60
D	0.244	0.256	6.20	6.50
D1	0.205	0.217	5.20	5.50
E	0.213	0.224	5.40	5.70
e	0.087	0.094	2.20	2.40
e1	0.173	0.189	4.40	4.80
L	0.378	0.409	9.60	10.40
L1	0.114	0.130	2.90	3.30
L2	0.055	0.067	1.40	1.70
L3	0.028	0.039	0.70	1.00

8. Part Marking System





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