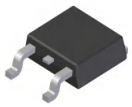
78M05
Three-terminalpositive voltage regulator

Description

The 78M05 three-terminal positive regulators are available in the TO-252 package with several fixed output voltages making it useful in a wide range of applications.

Features

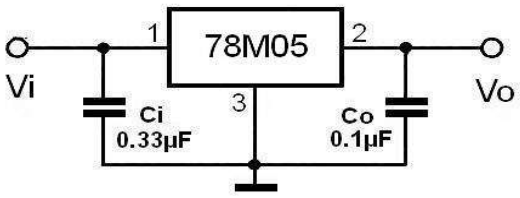


Output Current up to 1.0A
Output Voltages of 5V
Thermal Overload Protection
Short Circuit Protection
Output Transistor Safe Operating area (SOA)Protection

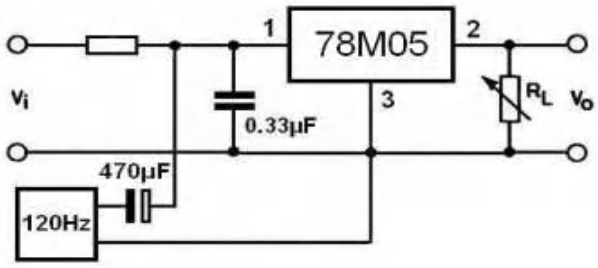
Absolute Maximum Ratings

Parameter	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	℃

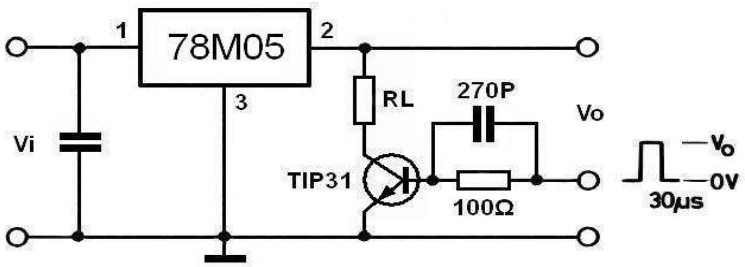
TYPICAL APPLICATION



DC Parameter



Ripple Rejection



Load Regulation

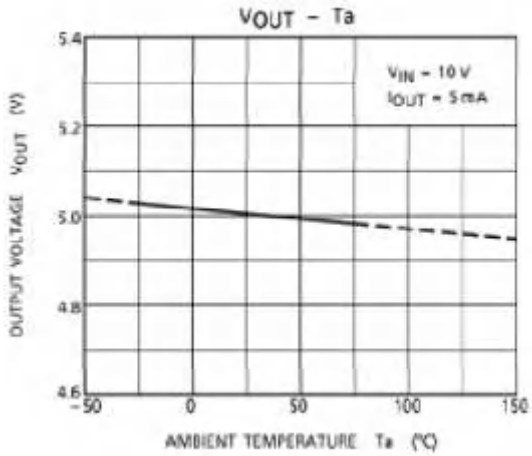
Electrical Characteristics

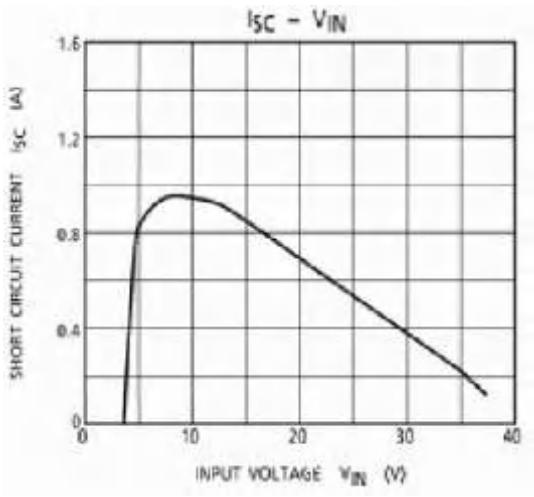
(Refer to the test circuits, I_O=750mA, V_I=10V, C_I = 0.33μF, C_O=0.1μF unless otherwise specified)

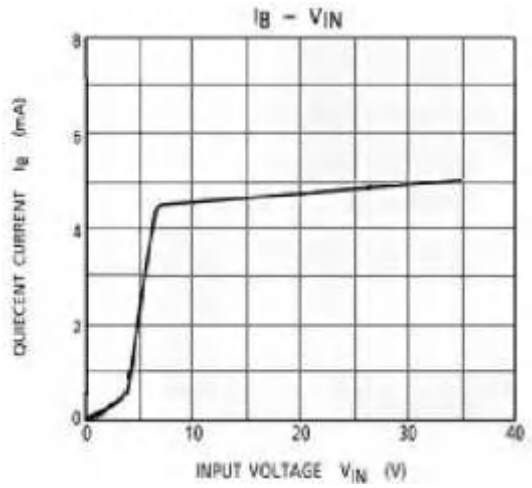
Parameter	Symbol	Conditions		Value			Unit
				Min	Typ	Max	
		Tj = 25°C		4.8		5.2	
Output Voltage	V_O	V_I = 7 ~ 20V I_O=5 ~ 1A		4.75	5	5.25	V
Line Regulation	ΔV_O	T_j = 25℃	V_I = 7 ~ 25V			120	mV
			V_I = 8 ~ 22V			60	
Load Regulation	ΔV_O	T_j = 25℃	I_O=5mA ~ 1A			120	mV
			I_O=0.25a~0.75A			60	
Quiescent Current	I_Q	T_j = 25℃				8	mA
Quiescent Current Change	ΔI_Q	I_O=5mA ~ 1A				0.5	mA
		V_I = 7 ~ 25V				1.2	
Output Voltage Drift	$\Delta V/\Delta T$	I_O = 5mA T_j = 0 to +125℃			-0.8		mV/℃
Output Noise Voltage	V_N	$10H_Z \leq f \leq 100KH_Z$			40		μV
Ripple Rejection	RR	f = 120Hz, I_O = 300mA V_I = 8 to 18V		60			dB
Dropout Voltage	V_D	T_j =+25℃ , I_O = 1A			2		V
Short Circuit Current	I_{SC}	T_j `=+25℃ , V_I= 35V			300		mA
Peak Current	I_{PK}				1.0		A

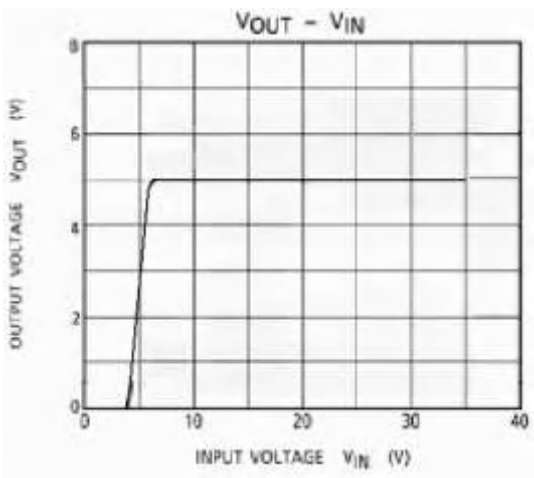
Notes:
*Load and line regulation are specified at constant junction temperature. Change in Vo due to heating effects must be taken into account separately. Pulse testing with low duty is used.

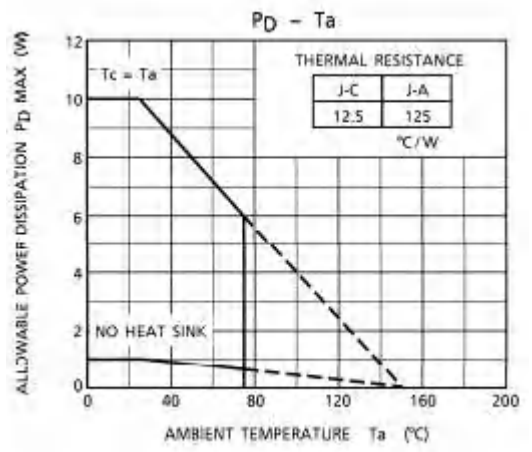
RATING AND CHARACTERISTIC CURVES

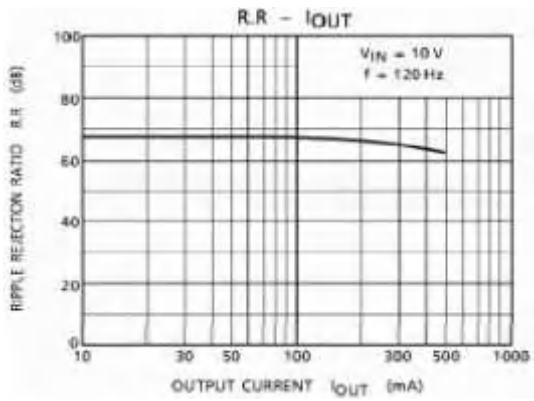








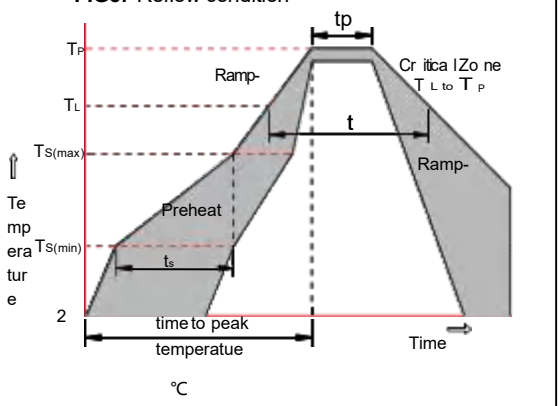




Soldering parameters

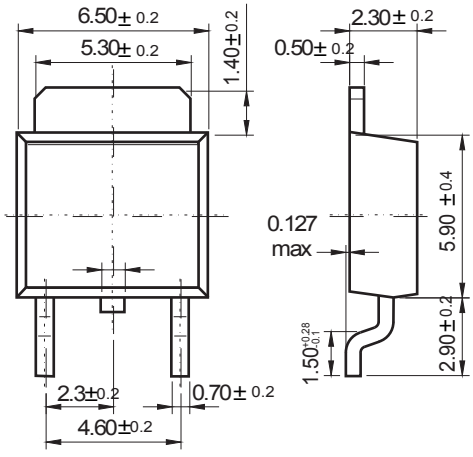
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition

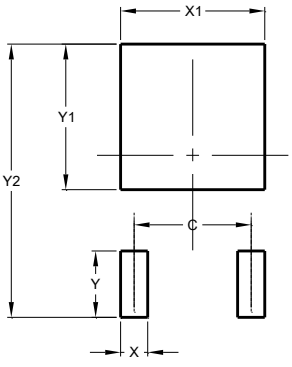


Package Dimensions & Suggested Pad Layout

TO-252



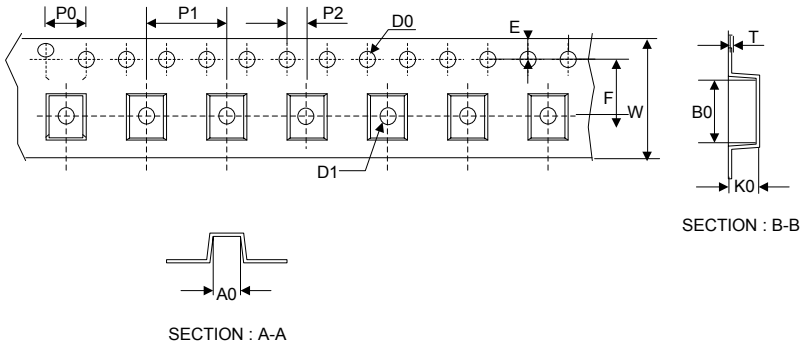
Dimensions in inches and (millimeters)



Dimensions	Value (in mm)
C	4.55
X	1.50
X1	5.80
Y	2.70
Y1	6.00
Y2	10.90

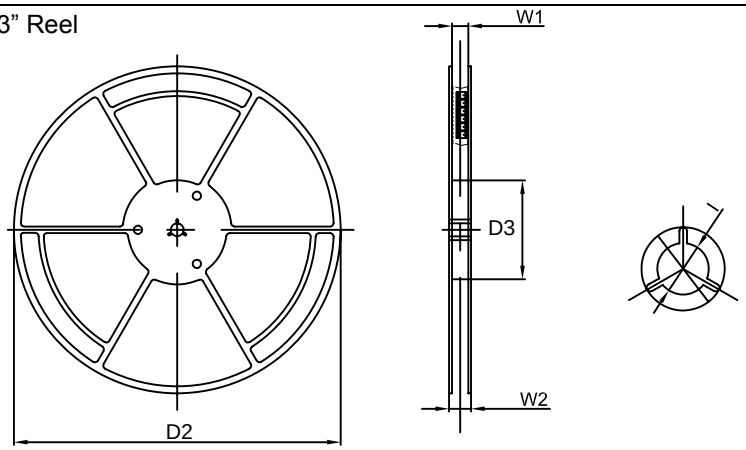
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	8.00±0.20
P2	2.00±0.20
D0	1.55±0.15
D1	1.55±0.20
E	1.75±0.20
F	7.50±0.20
W	16.00±0.20
A0	7.10±0.20
B0	10.50±0.20
K0	2.70±0.20
T	0.30±0.10

13” Reel



D2	330.0±5.0
D3	100.0±4.0
W1	20.0±5.0
W2	25.0±5.0
I	13.0±2.0

Quantity: 2500PCS