

TO-252 Plastic-Encapsulate Regulators

78M05

Three-terminal positive voltage regulator

Features

Maximum output current

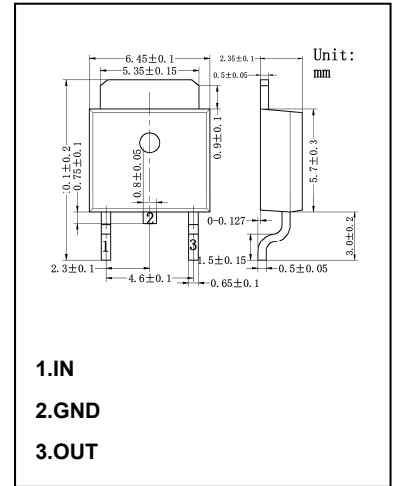
I_{OM} : 0.5 A

Output voltage

V_o : 5V

Continuous total dissipation

P_D : 1.25 W



Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

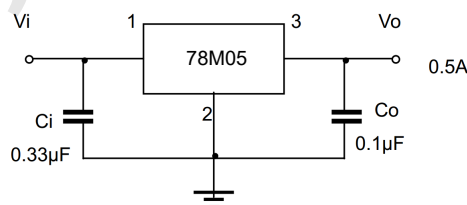
Symbol	Parameter	Value	Unit
V_i	Input Voltage	35	V
T_{OPR}	Operating Junction Temperature Range	0 to +125	°C
T_{STG}	Storage Temperature Range	-65 to +150	°C

Electrical Characteristics At Specified Virtual Junction Temperature

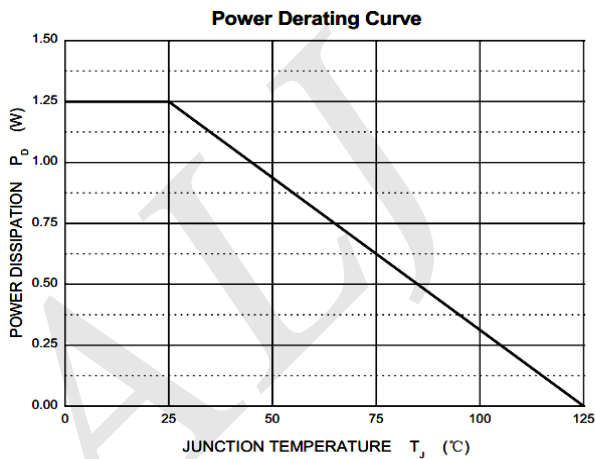
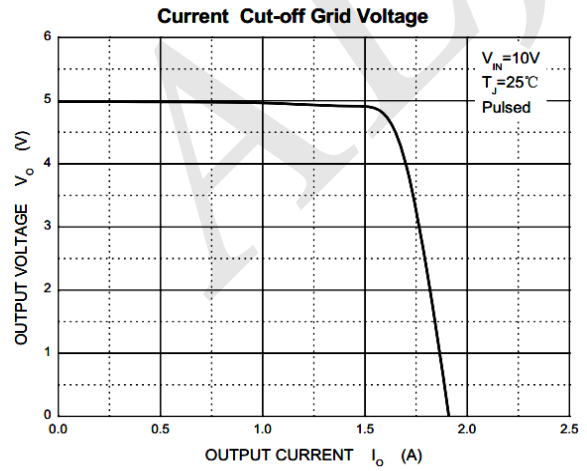
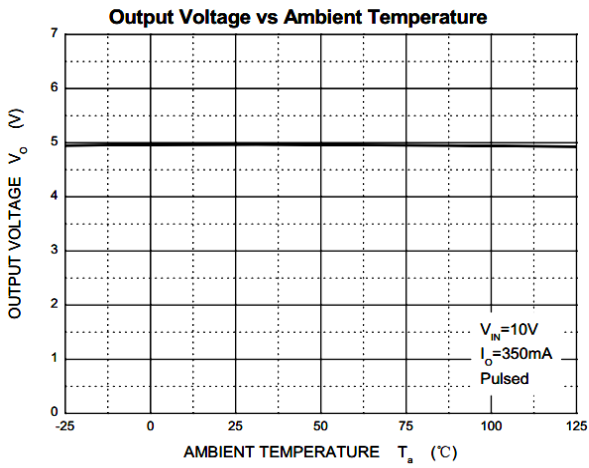
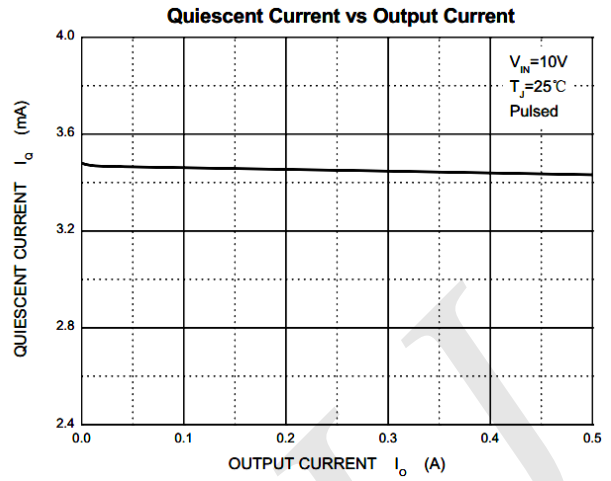
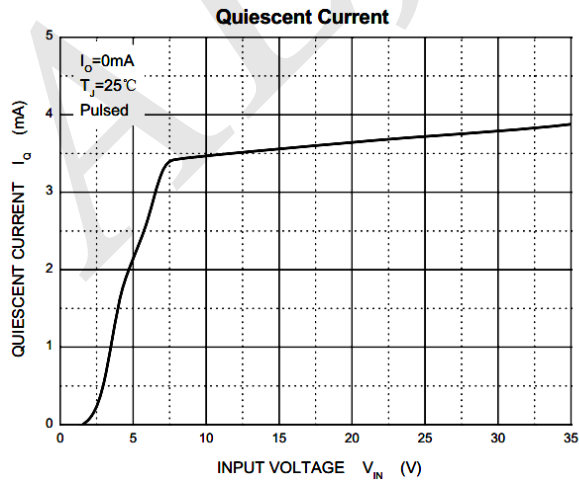
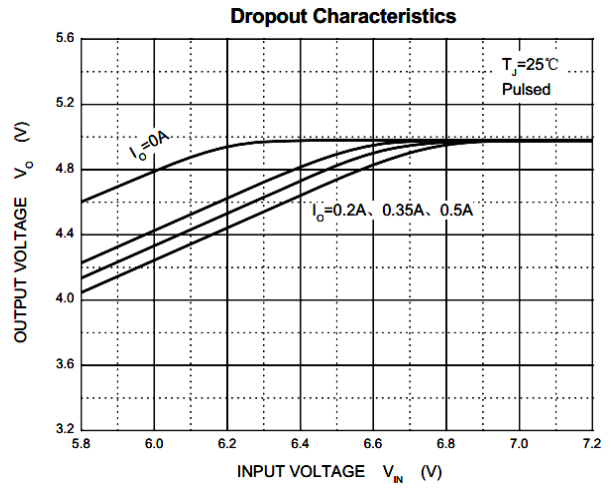
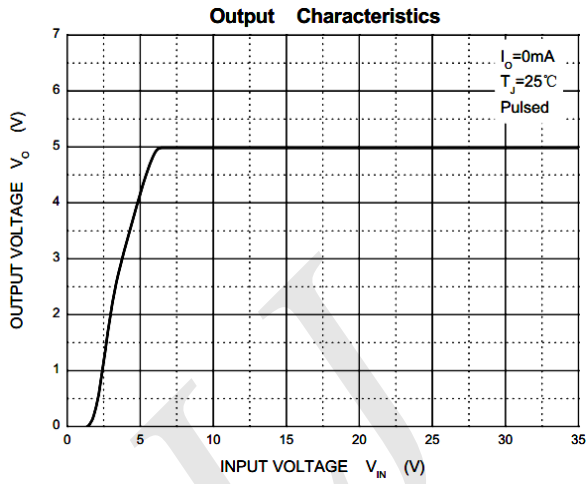
($V_i=10V, I_o=350mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_o	Output Voltage	25°C	4.8	5	5.2	V
		7V ≤ V_i ≤ 20V, $I_o=5mA-350mA$ $P_o \leq 15W$ 0-125°C	4.75	5	5.25	V
ΔV_o	Load Regulation	$I_o=5mA-0.5A$ 25°C		15	100	mV
		$I_o=5mA-200mA$ 25°C		5	50	mV
ΔV_o	Line Regulation	7V ≤ V_i ≤ 25V, $I_o=200mA$ 25°C		3	100	mV
		8V ≤ V_i ≤ 25V, $I_o=200mA$ 25°C		1	50	mV
I_q	Quiescent Current	25°C		4.2	6	mA
ΔI_q	Quiescent Current Change	8V ≤ V_i ≤ 25V, $I_o=200mA$ 0-125°C			0.8	mA
ΔI_q		5mA ≤ I_o ≤ 350mA 0-125°C			0.5	mA
V_N	Output Noise Voltage	10Hz ≤ f ≤ 100KHz 25°C		40	200	μV
RR	Ripple Rejection	8V ≤ V_i ≤ 18V, f=120Hz, $I_o=300mA$ 0-125°C	62	80		dB
V_d	Dropout Voltage	$I_o=350mA$ 25°C		2	2.5	V
I_{sc}	Short Circuit Current	$V_i=10V$ 25°C		300		mA
I_{pk}	Peak Current	25°C		0.5		A

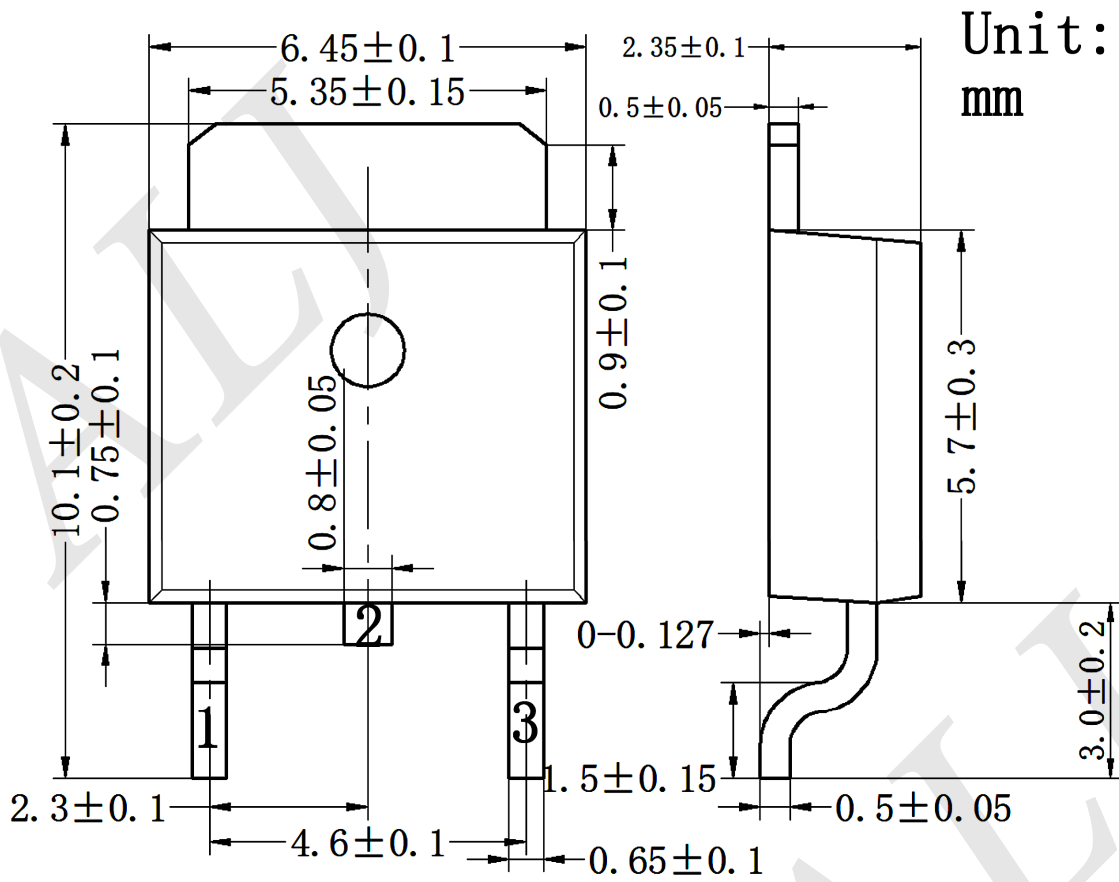
Typical Application



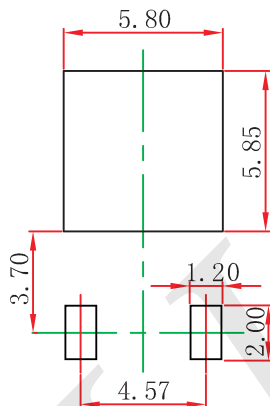
Typical Characteristics



TO-252-2L Package Outline Dimensions



TO-252-2L Suggested Pad Layout



Note:

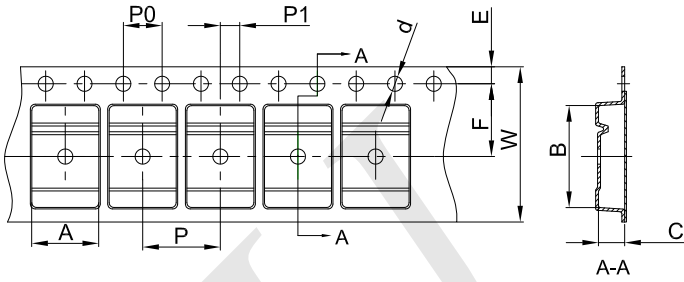
1. Controlling dimension: in millimeters.

2. General tolerance: ± 0.05 mm.

3. The pad layout is for reference purposes only.

TO-252-2L Tape and Reel

TO-252 Embossed Carrier Tape

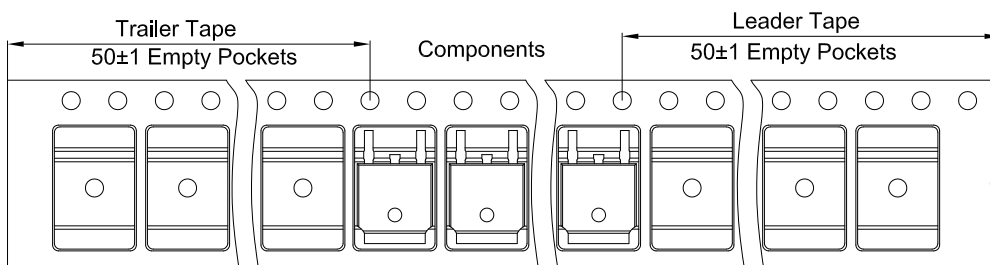


Packaging Description:

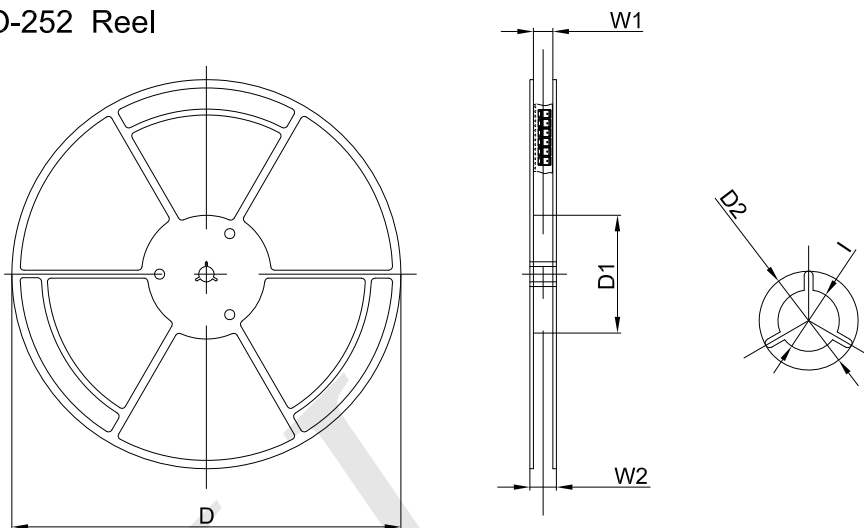
TO-252 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 25,00 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter											
Pkg type	A	B	C	d	E	F	P0	P	P1	W	
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00	

TO-252 Tape Leader and Trailer



TO-252 Reel

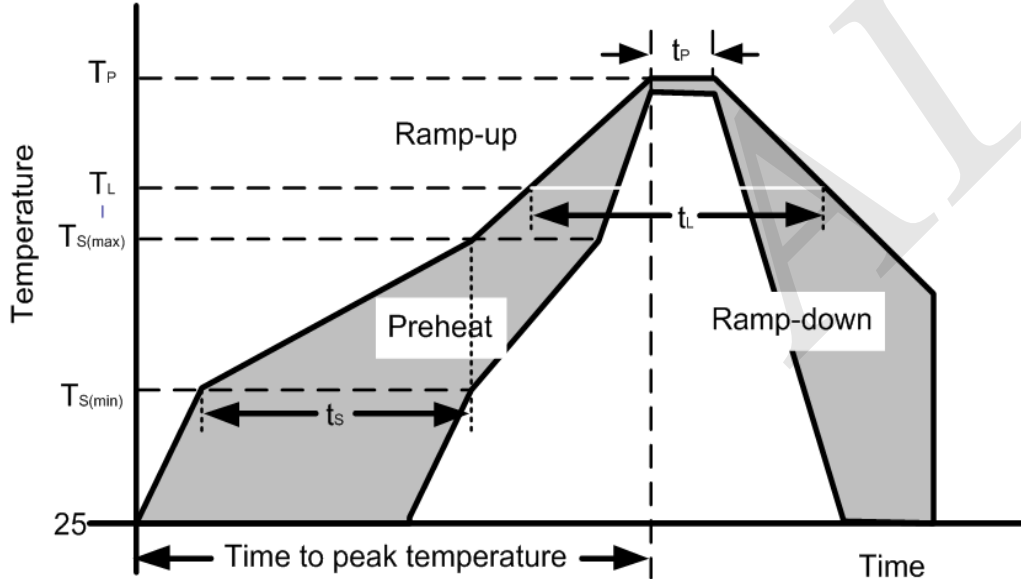


Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13" Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	

Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



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