78M05
Three-terminalpositive voltage regulator

Features

Low gate charge

Low C_{iss}

ast switching

00% avalanche tested

mproved dv/dt capability

output current

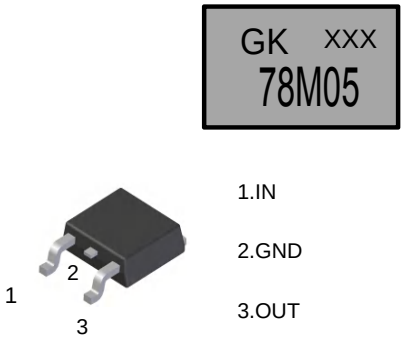
I_{OM}: 0.5 A

Output voltage

V_O: 5V

Continuous total dissipation

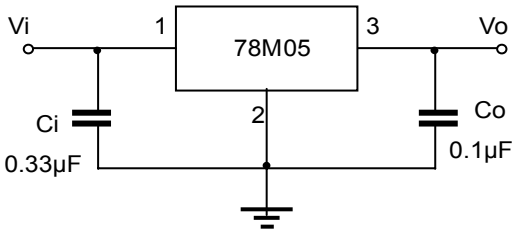
P_D: 1.25 W (T_a= 25 ℃)



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	80	℃/W
Operating Junction Temperature Range	T_{OPR}	-25~+125	℃
Storage Temperature Range	T_{STG}	-65~+150	℃

TYPICAL APPLICATION



Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

Electrical Characteristics

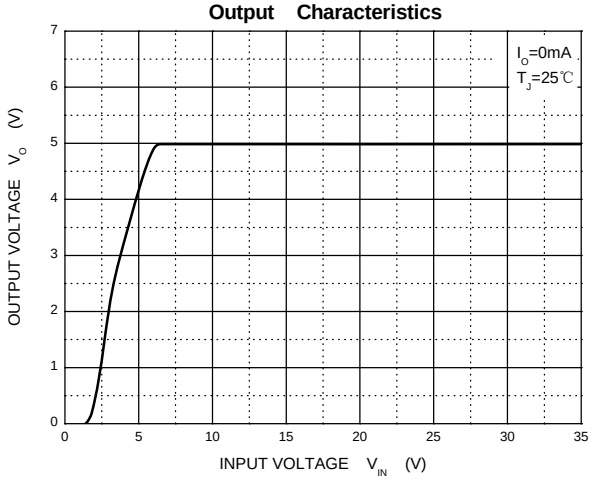
(Refer to the test circuits, I_O=750mA, V_I=10V, C_I = 0.33μF, C_O=0.1μF unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Output Voltage	Vo		25℃	4.8	5	5.2	V
		7V≤V i≤20V, Io=5mA-350mA	-25~125℃	4.75	5	5.25	V
Load Regulation	ΔVo	Io=5mA-0.5A	25℃		15	100	mV
		Io=5mA-200mA	25℃		5	50	mV
Line Regulation	ΔVo	7V≤V i≤25V, Io=200mA	25℃		3	100	mV
		8V≤V i≤25V, Io=200mA	25℃		1	50	mV
Quiescent Current	Iq		25℃		4.2	6	mA
Quiescent Current Change	ΔIq	8V≤V i≤25V, Io=200mA	-25~125℃			0.8	mA
	ΔIq	5mA≤I_O≤350mA	-25~125℃			0.5	mA
Output Noise Voltage	V_N	10Hz≤ f ≤100KHz	25℃		40	200	μV/Vo
Ripple Rejection	RR	8V≤V_i≤18V,f=120Hz,Io=300mA	-25~125℃	62	80		dB
Dropout Voltage	Vd	Io=350mA	25℃		2	2.5	V
Short Circuit Current	Isc	Vi=10V	25℃		300		mA
Peak Current	Ipk		25℃		0.5		A

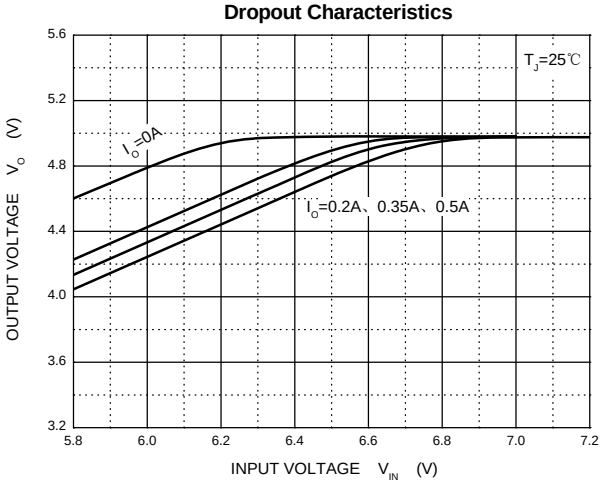
* Pulse test.

RATING AND CHARACTERISTIC CURVES

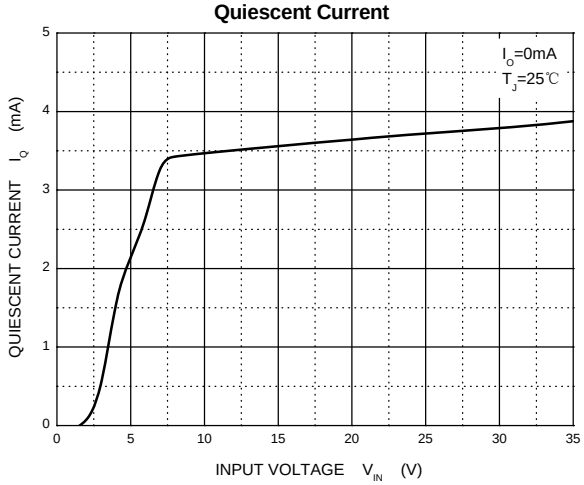
Output Characteristics



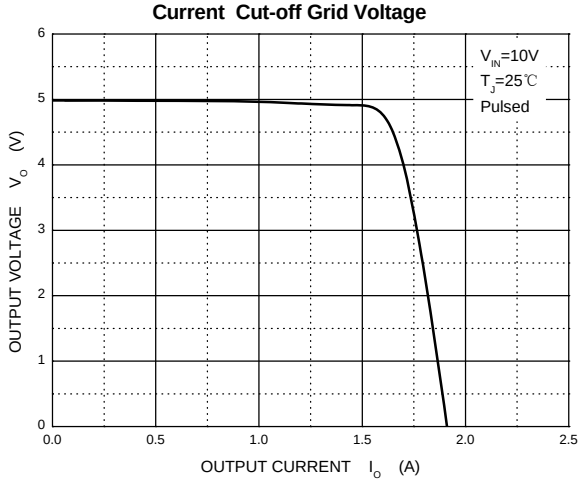
Dropout Characteristics



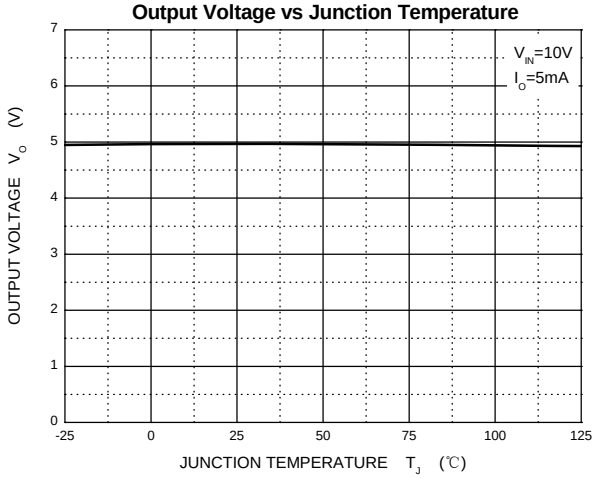
Quiescent Current



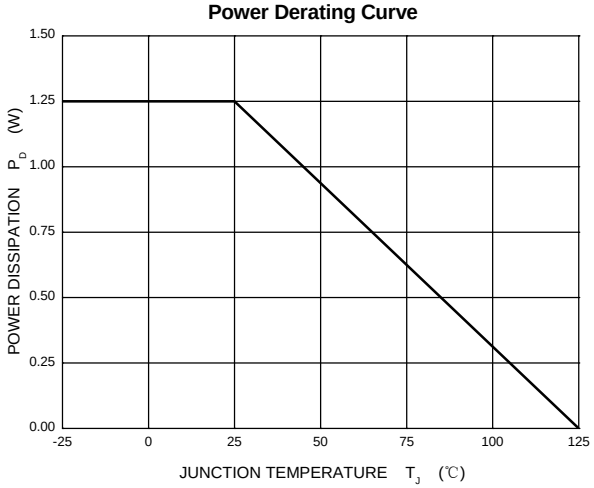
Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature



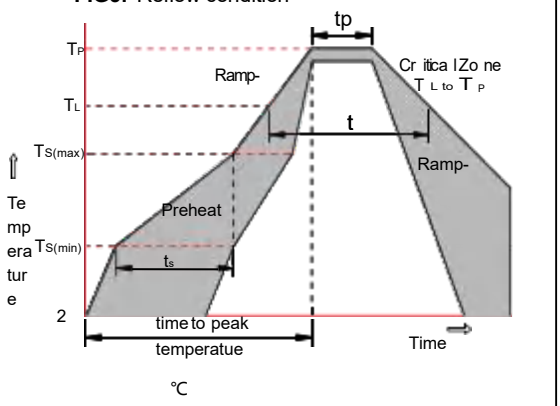
Power Derating Curve



Soldering parameters

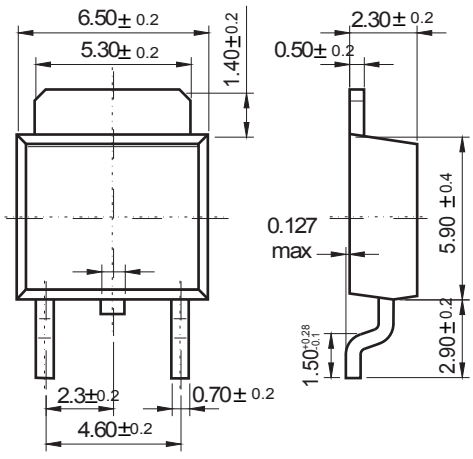
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid 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

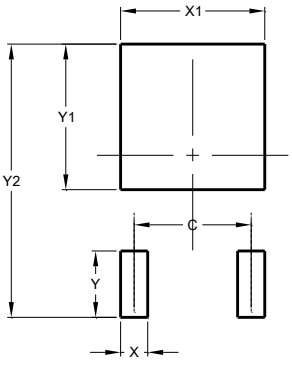


Package Dimensions & Suggested Pad Layout

TO-252



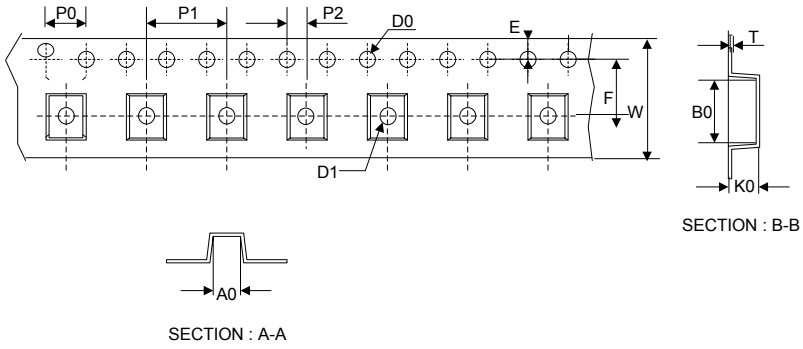
Dimensions in inches and (millimeters)



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

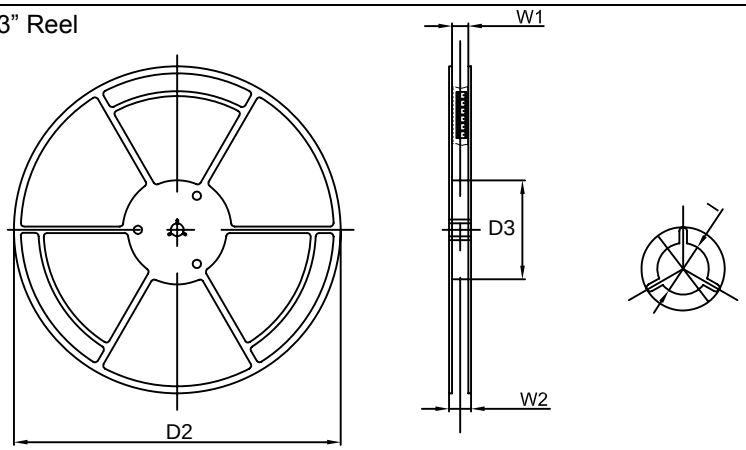
Tape & rell specification

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

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