Descriptions

This is 78D05M is Voltage Regulator in a TO-252 Plastic Package.

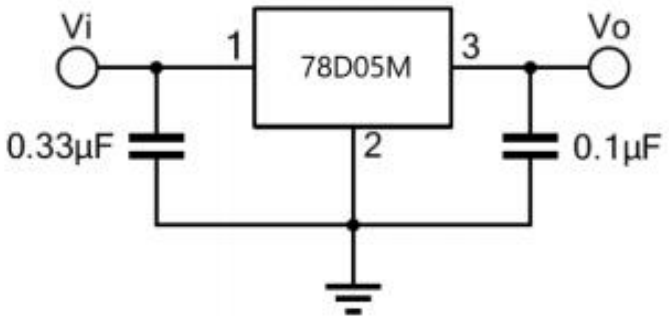
Features

- 3-terminal regulators
- Output current up to 0.5A
- Internal thermal overload protection and short-circuit limiting
- Halogen-free product

Applications

- Voltage Regulator.

Equivalent Circuit



Pinning

PIN1：IN　　PIN 2、4：GND　　PIN 3：OUT

Absolute Maximum Ratings(Ta=25℃)

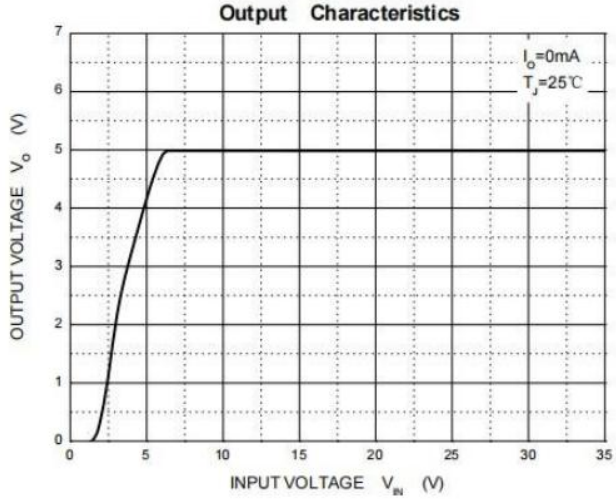
Parameter	Symbol	Rating	Unit
Input voltage	V_I	35	V
Power Dissipation	P_D	Internally Limited	W
Thernal Resistance Junction-Ambient	$R_{\theta JA}$	105	℃/W
Thernal Resistance Junction-Case	$R_{\theta JC}$	10	℃/W
Operating Junction Temperature Range	T_{OPR}	0～125	℃
Storage temperature range	T_{stg}	-65～150	℃

Electrical Characteristics(Ta=25℃)

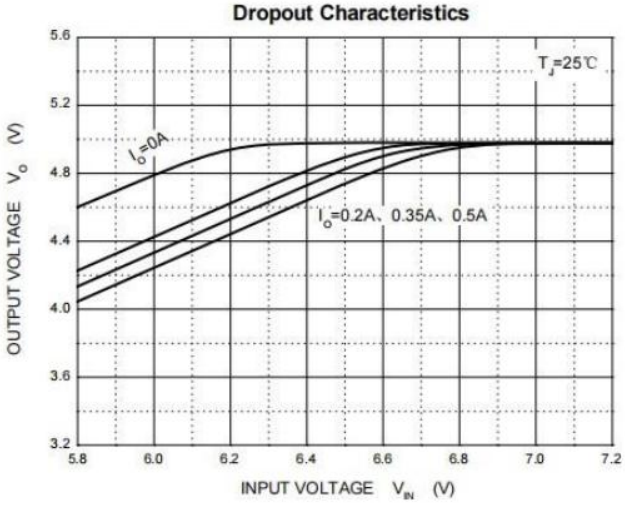
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_O	T_j=25℃	4.8	5.0	5.2	V
		V_i=7V~20V Io=5mA~350mA	4.75	5.0	5.25	V
Load Regulation	$\triangle V_{Load}$	T_j=25℃ Io=5mA~500mA			100	mV
		T_j=25℃ Io=5mA~200mA			50	mV
Line Regulation	$\triangle V_{Line}$	T_j=25℃ Vi=7V~25V			100	mV
		T_j=25℃ Vi=8V~25V			50	mV
Quiescent Current	Iq	T_j=25℃			6.0	mA
Quiescent Current Change	$\triangle$Iq	V_i=8V~25V			0.8	mA
		Io=5mA~350mA			0.5	mA
Output Voltage Drift	$\triangle Vo/\triangle T$	Io=5mA T_j=0~125℃		0.5		mV/℃
Output Noise Voltage	eN	B=10Hz~100KHz T_j=25℃		40		μV/Vo
Supply Voltage Rejection	SVR	V_i=8V~18V f=120Hz	62			dB
Dropout Voltage	Vd	T_j=25℃		2.0		V
Short Circuit Current	Isc	T_j=25℃		700		mA

Electrical Characteristic Curve

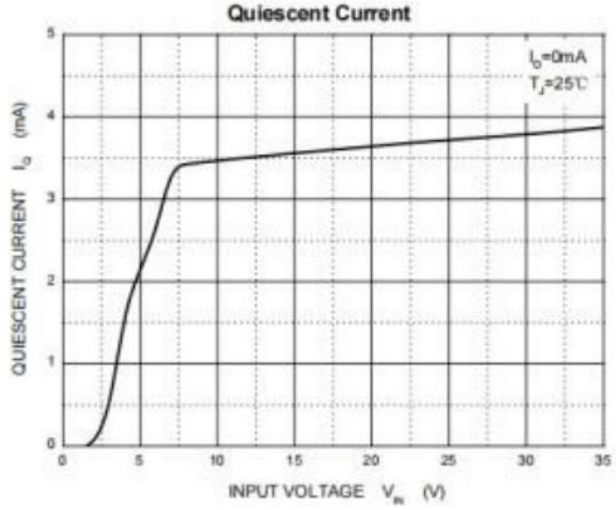
Output Characteristics



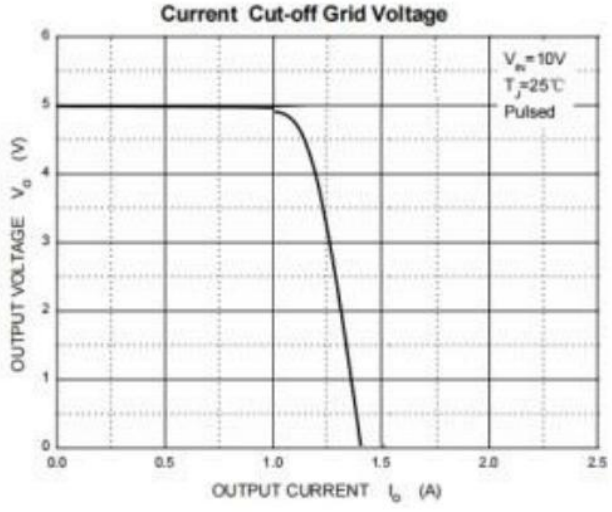
Dropout Characteristics



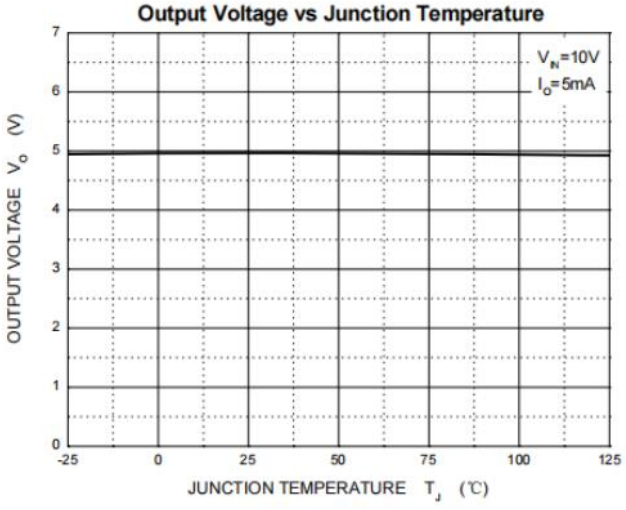
Quiescent Current



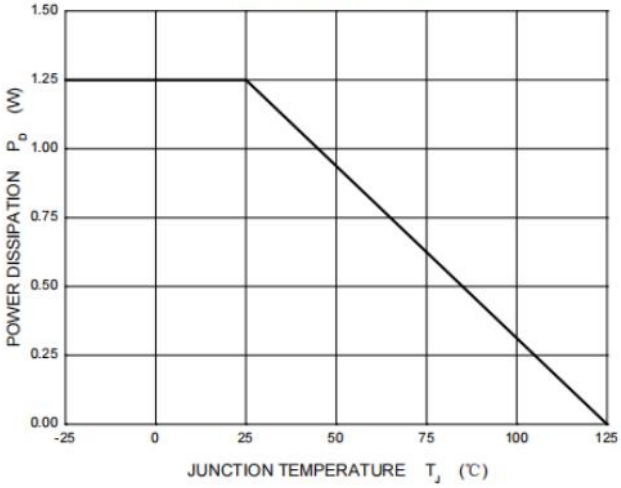
Current Cut-off Grid Voltage



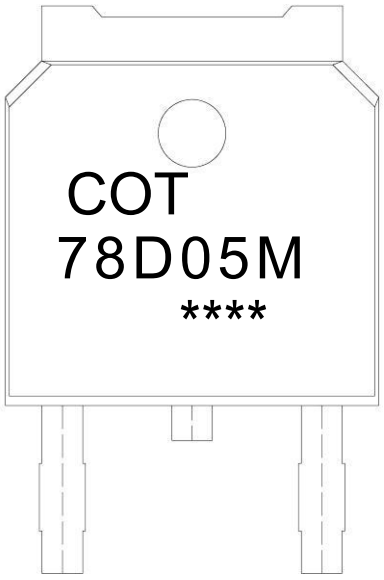
Output Voltage vs Junction Temperature



Power Derating Curve



Marking Instructions



Note:

COT: Company Code.

78D05M: Product Type.

****: Lot No. Code, code change with Lot No.

Packaging SPEC

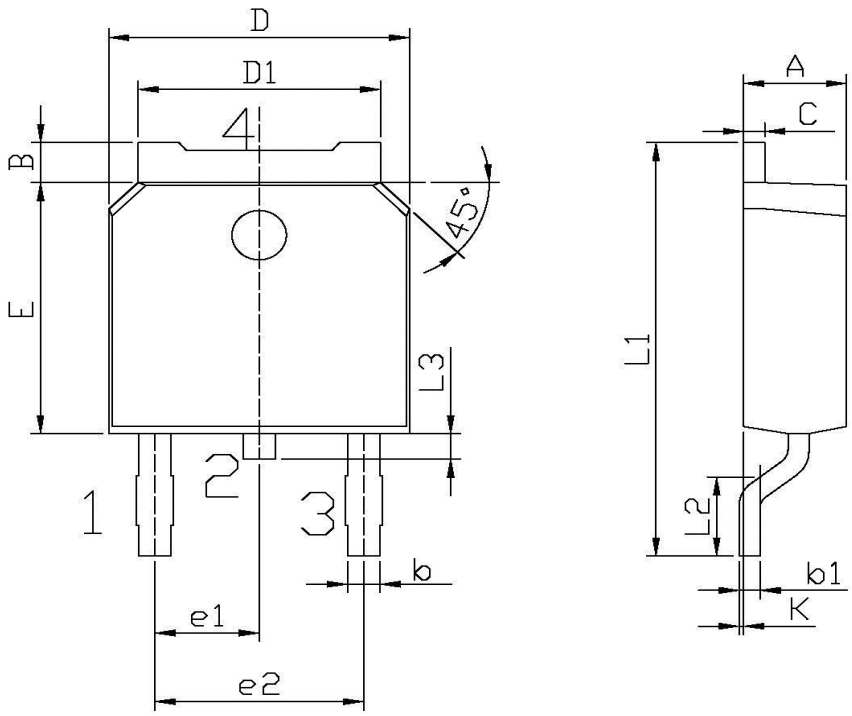
REEL

Package Type	Units					Dimension (unit：mm³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13″ ×16	360×360×50	380×335×366

TUBE

Package Type	Units					Dimension (unit：mm3)		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

Package Outline Dimensions



单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.70	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.85	10.35
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

TO-252

Notices

◆ 电路输入端和输出端推荐都要放置低频滤波电容和高频滤波电容，低频滤波电容推荐使用电解电容， 高频滤波电容推荐使用瓷片电容，且输出端电解电容容量建议要低于输入端电解电容容量，防止掉电时输出电压反串到输入端。PCB 布局时，应将滤波电容分别尽可能靠近电路的输入和输出引脚放置。

◆ 输入端和输出端压差不能太大，太大则转换效率急速降低、功耗大，而且当电源变化较大超出极限电压时可能会击穿损坏电路。输入端和输出端压差也不能太小，低于最小压差时会影响输出的稳定性。实际使用时，还需综合考虑输出电流设计值、热阻和封装功耗，选择合适的输入、输出压差，保证整机系统的散热情况，防止整机正常工作温度范围内进入热保护状态。

◆ 当整机系统对可靠性要求较高或整机正常工作时供电环境比较恶劣，整机系统设计时，应充分考虑电路的保护措施（如：增加浪涌、过压和过流保护），有效抑制异常高压脉冲或电网浪涌对电路端口的冲击，防止电路异常烧毁失效。