GP78M05X

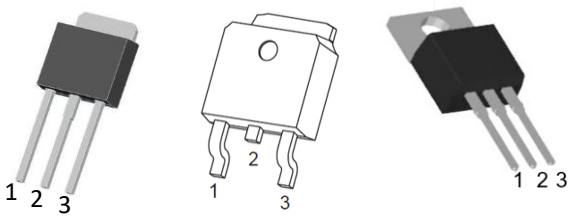
Three-terminal positive voltage regulator

GP78M05X

Feature

- Thermal Overload Protection
- Short Circuit Protection
- Output Voltage: 5V
- Output Current: 500mA
- Output Transition Safe-Area Compensation

1. IN
2. GND
3. OUT



TO-251	TO-252	TO-220
GP78M05P	GP78M05D	GP78M05T

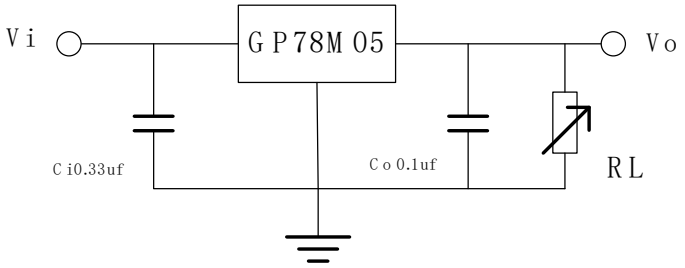
Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Air (TO-251/TO-252)	$R_{\theta JA}$	80	℃/W
Thermal Resistance from Junction to Air (TO-220)	$R_{\theta JA}$	66.7	℃/W
Operating Junction Temperature Range	T_{OPR}	-25~+125	℃
Storage Temperature Range	T_{STG}	-25~+150	℃

Electrical Characteristics (T_A=25℃ unless otherwise noted)

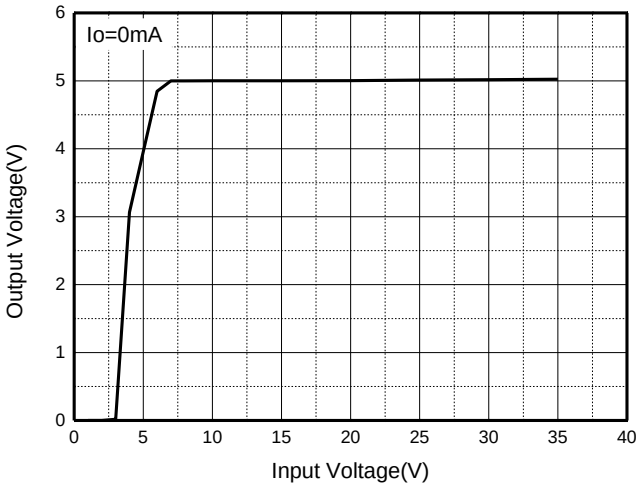
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Output Voltage	V_O	7V≤V_{IN}≤20V, I_O=5~350mA	4.78	5.00	5.22	V
Load Regulation	|ΔV|	Io =250mA , 8V≤Vin≤12V			23	mV
Line Regulation	|ΔV|	5mA≤Io≤250mA, Vin =10V			39	mV
		5mA≤Io≤500mA, Vin =10V			79	mV
Quiescent Current	IB	Io =5mA, Vin =10V	1.5	3.0	4.7	mA
Quiescent Current Change	|ΔIB|	5mA≤Io≤250mA, Vin =10V		0.3	0.4	mA
		8V≤Vin≤25V, Io =50mA		0.3	0.7	mA
Dropout Voltage	V_{O2} - V_{O1}	Vo1@Vin=8V,Io=5mA Vo2@Vin=7.4V,Io=500mA	-50		50	mV
Supply Current	I_{CC}	Vi=35V，Io=0mA			9	mA

Typical Application

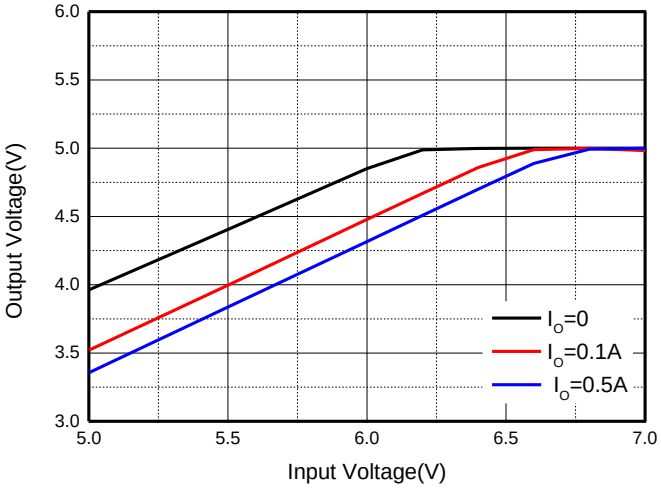


Typical Performance Characteristics

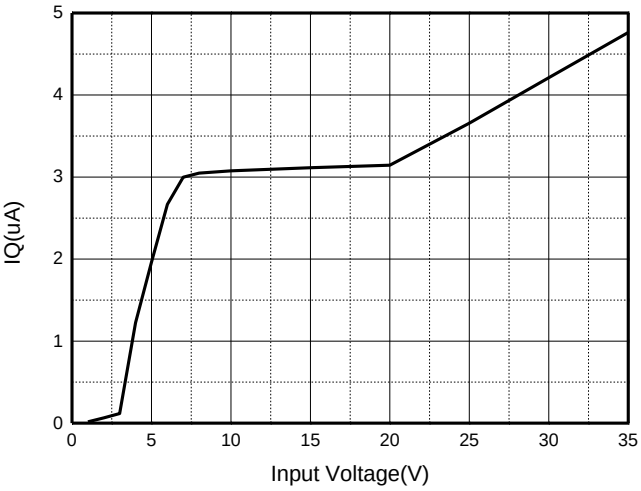
Output Characteristics



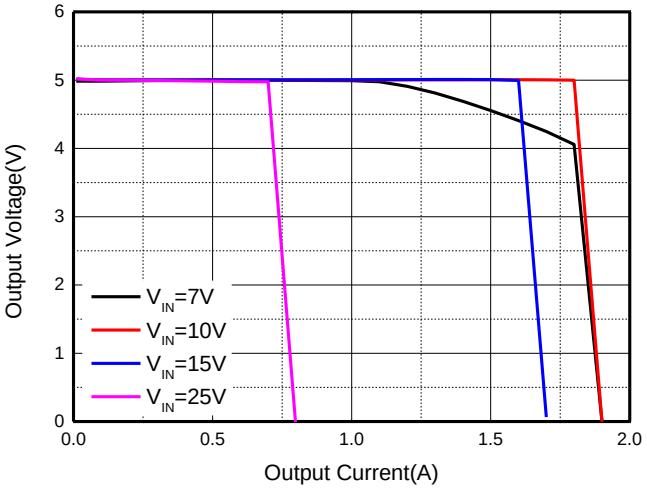
Output Characteristics



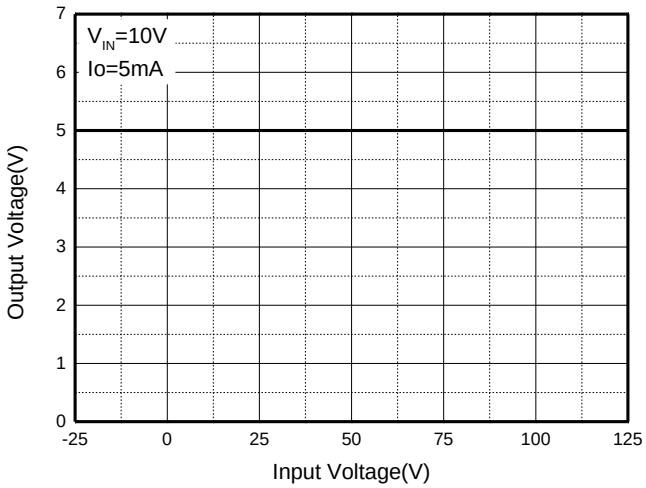
Quiescent Current



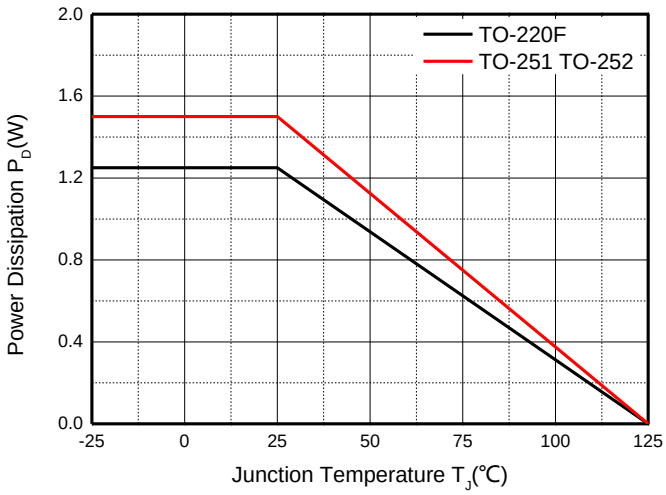
Current Cut-off Grid Voltage



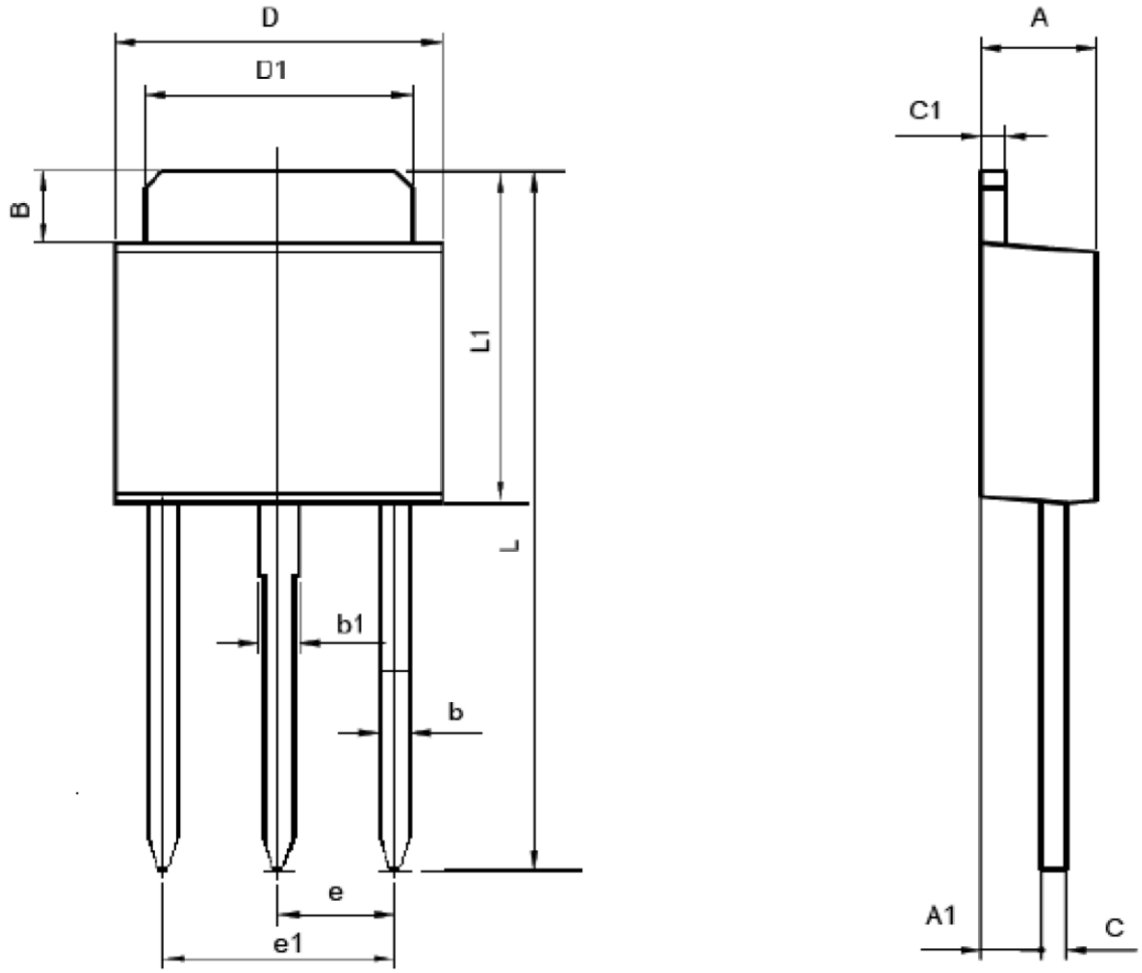
Output Voltage vs Junction Temperature



Power Derating Curve

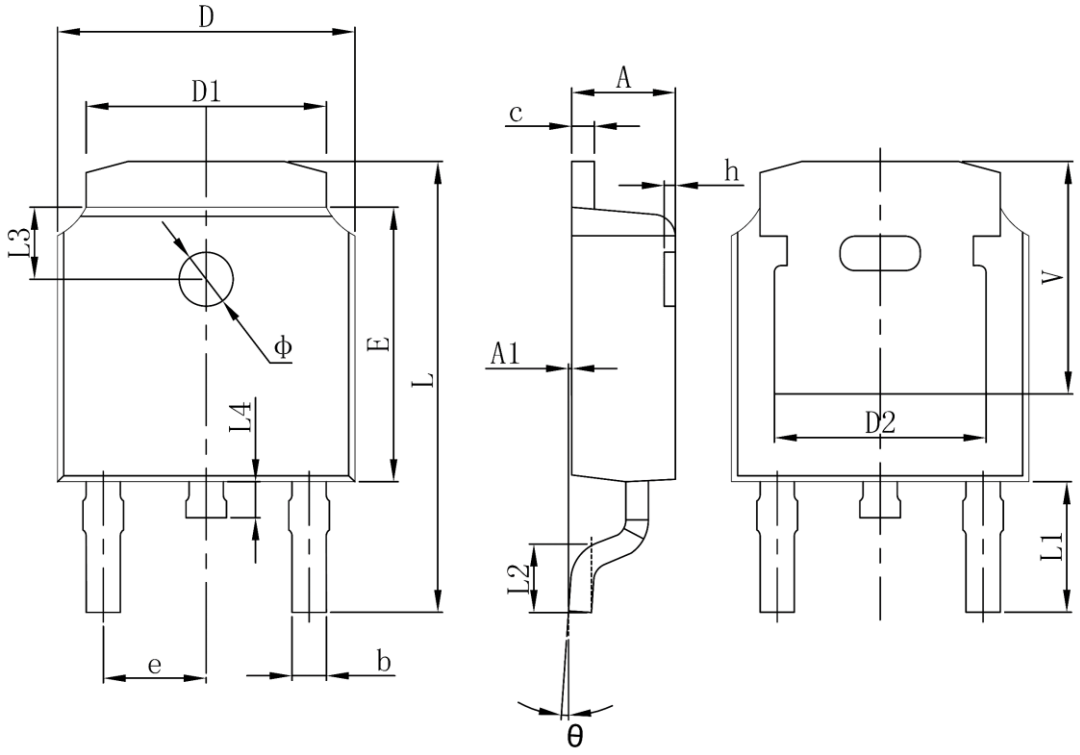


TO-251 Package Outline Dimensions



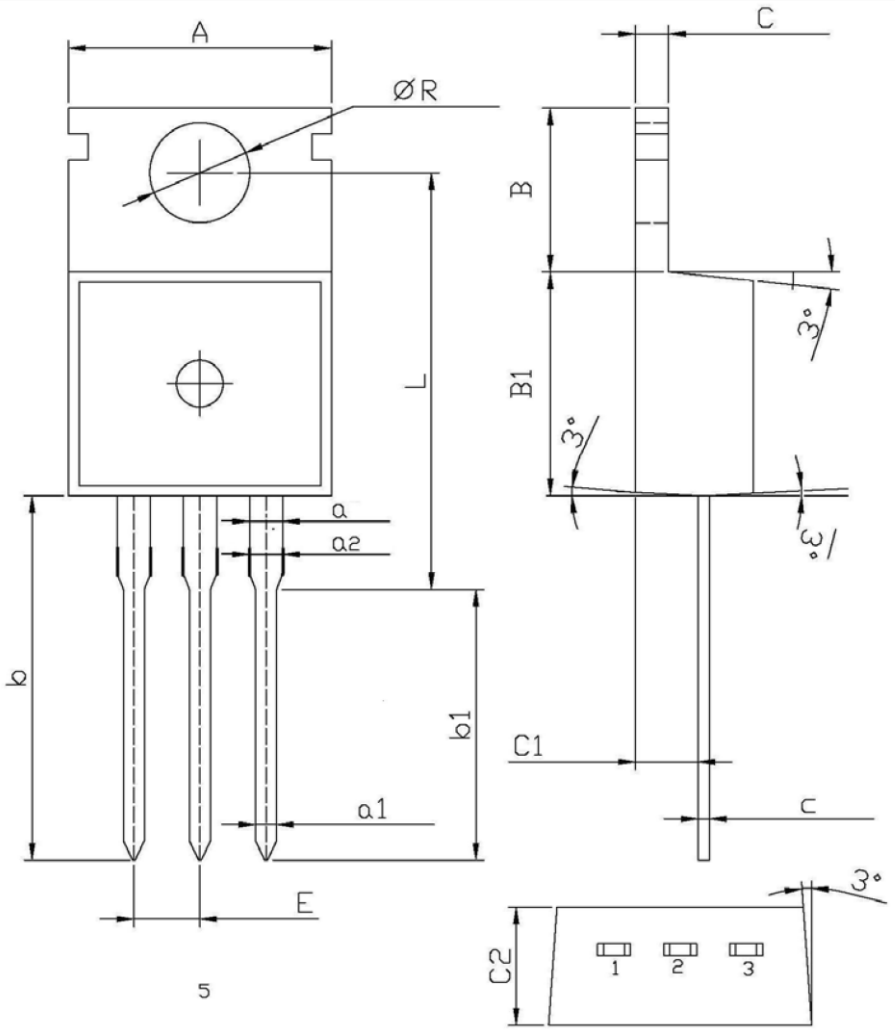
SYMBOL	MIN	MAX	MIN	MAX
A	2.2	2.4	0.087	0.091
A1	1.1	1.3	0.043	0.051
B	1.3	1.7	0.051	0.067
b	0.5	0.7	0.02	0.028
b1	0.7	0.9	0.028	0.035
c	0.46	0.56	0.018	0.022
c1	0.46	0.56	0.018	0.022
D	6.36	6.65	0.25	0.2622
D1	5.2	5.4	0.205	0.213
L1	6.85	7.15	0.27	0.281
e	2.30TYP.		0.091TYP.	
e1	4.5	4.7	0.177	0.185
L	14.85	15.45	0.585	0.608

TO-252 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.860	0.025	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830REF		0.190REF	
E	6.000	6.300	0.236	0.248
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900REF		0.114REF	
L2	1.400	1.700	0.055	0.067
L3	1.600REF		0.063REF	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250REF		0.207REF	

TO-220F Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.800	10.200	0.386	0.402
R	3.560	3.640	0.140	0.143
L	15.700	16.100	0.618	0.634
b	12.600	13.600	0.496	0.535
b1	9.600	10.600	0.378	0.417
a	1.220	1.320	0.048	0.052
E	2.340	2.740	0.092	0.108
a2	1.250	1.620	0.049	0.064
C	1.200	1.400	0.047	0.055
B	5.900	6.700	0.232	0.264
B1	9.000	9.400	0.354	0.370
C1	2.200	2.600	0.087	0.102
a1	0.700	0.900	0.028	0.035
c	0.400	0.600	0.016	0.024
C2	4.300	4.700	0.169	0.185

Attention：

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.