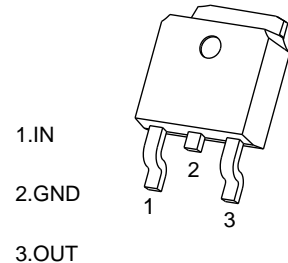


## GP78M12D

### Feature

- Thermal Overload Protection
- Short Circuit Protection
- Output Voltage Of 12V
- Output Current Of 0.5A
- Output Transition Safe-Area Compensation

**TO-252-2L**


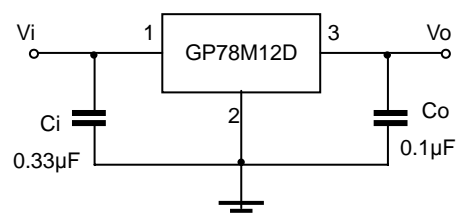
### Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Input voltage	$V_{IN}$	35	V
Thermal Resistance from Junction to Air	$R_{\theta JA}$	80	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	$T_{OPR}$	-40~+125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65~+150	$^\circ\text{C}$
Power Dissipation	$P_D$	1.25	W

### Electrical Characteristics ( $T_a=25^\circ\text{C}$ unless otherwise noted)

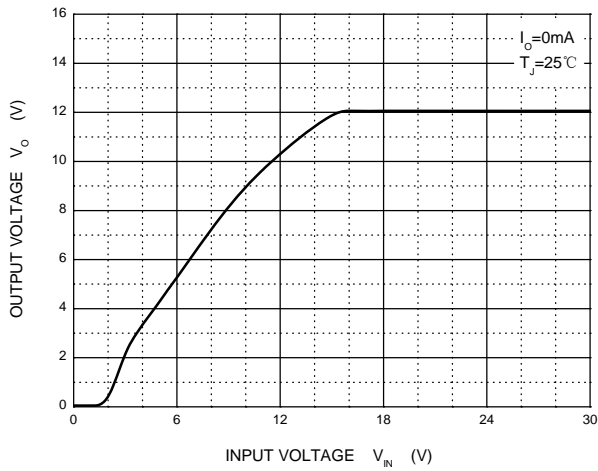
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Output voltage	$V_O$	$V_{IN} = 19\text{V}, I_O = 350\text{mA}$	11.5	12	12.5	V
Load Regulation	$\Delta V_O$	$V_{IN} = 14.5\sim 30\text{V}, I_O = 200\text{mA}$			100	mV
		$V_{IN} = 16\sim 30\text{V}, I_O = 200\text{mA}$			50	mV
Line regulation	$\Delta V_O$	$V_{IN} = 19\text{V}, I_O = 5\sim 500\text{mA}$			240	mV
		$V_{IN} = 19\text{V}, I_O = 5\sim 200\text{mA}$			120	mV
Quiescent Current	$I_q$	$V_{IN} = 19\text{V}, I_O = 350\text{mA}$			5	mA
Quiescent Current Change	$\Delta I_q$	$I_O = 5\sim 350\text{mA}, V_{IN} = 19\text{V}$			0.5	mA
		$V_{IN} = 14.5\sim 30\text{V}, I_O = 200\text{mA}$			0.8	mA
Dropout Voltage	$V_{drop}$	$I_O = 350\text{mA}$		2	3	V
Short Circuit Current	$I_{SC}$	$V_{IN} = 19\text{V}, I_O = 0\text{mA}$		240		mA

### Typical Application

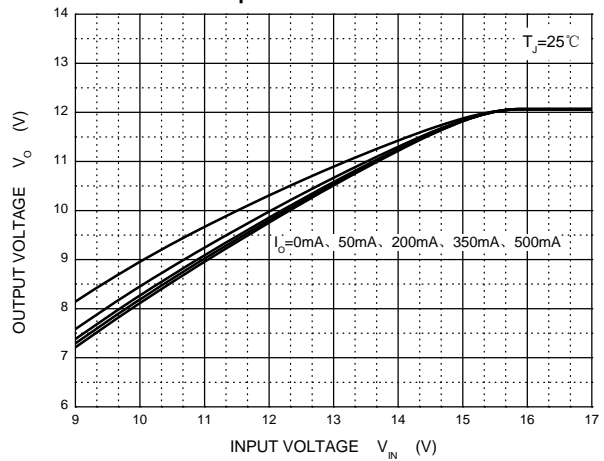


## Typical Characteristics

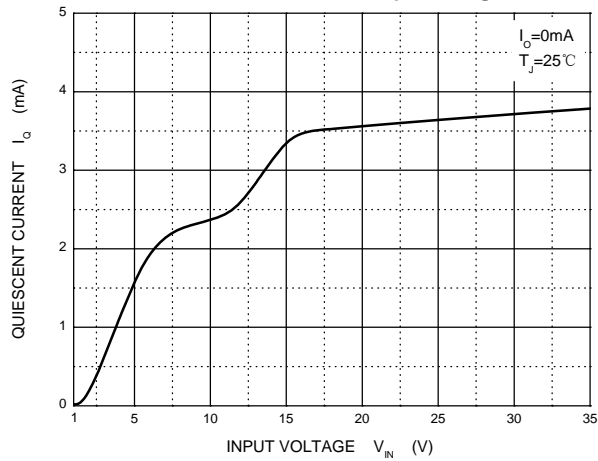
### Output Characteristics



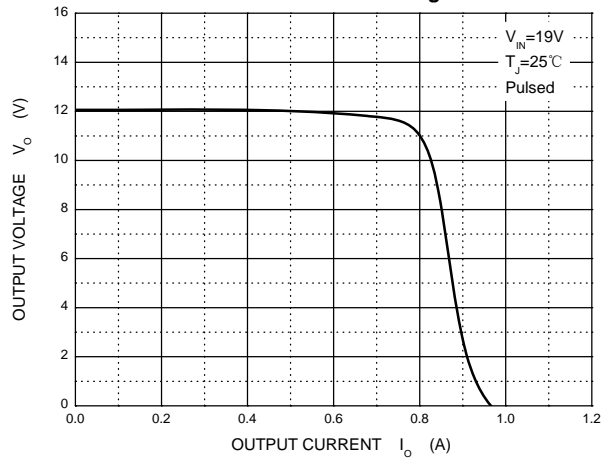
### Dropout Characteristics



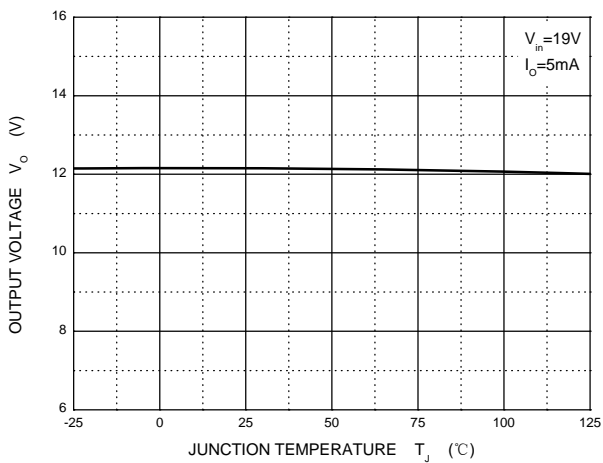
### Quiescent Current vs Input Voltage



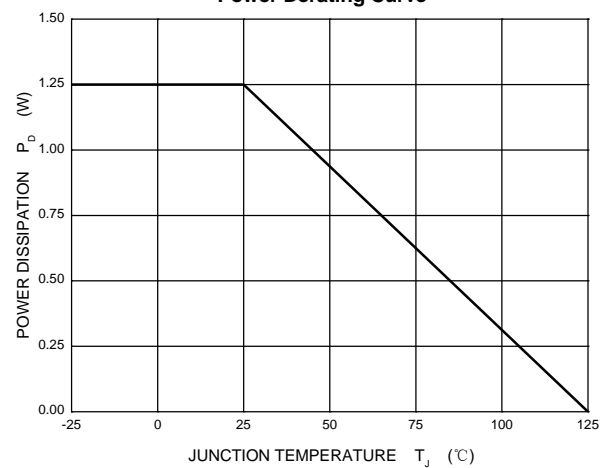
### Current Cut-off Grid Voltage



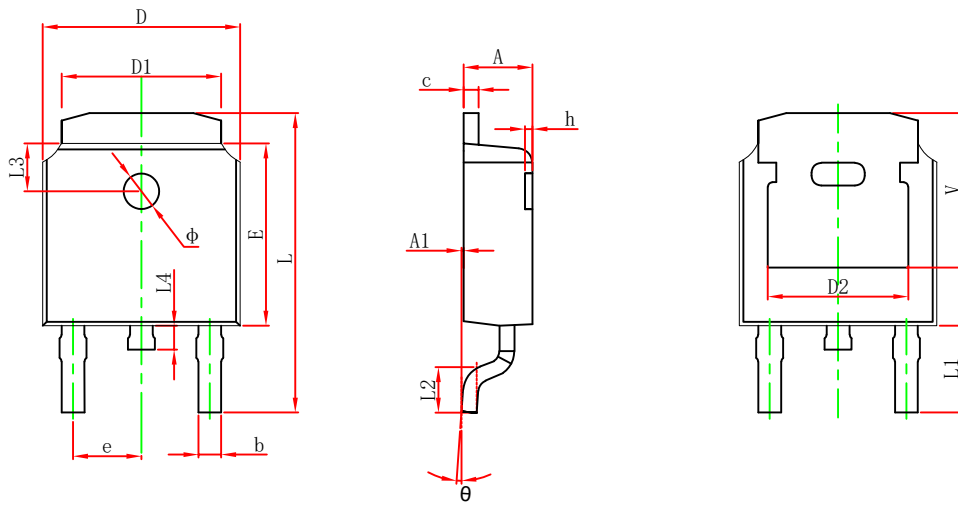
### Output Voltage vs Junction Temperature



### Power Derating Curve



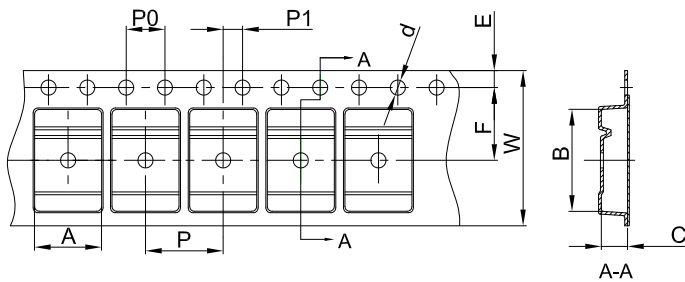
## TO-252-2L Package Outline Dimensions



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	0.770	0.025	0.030
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	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
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	5.250 REF.		0.207 REF.	

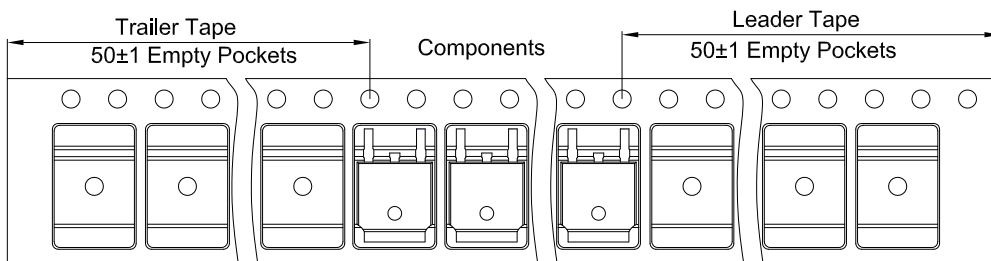
## TO-252-2L Tape and Reel

### TO-252 Embossed Carrier Tape

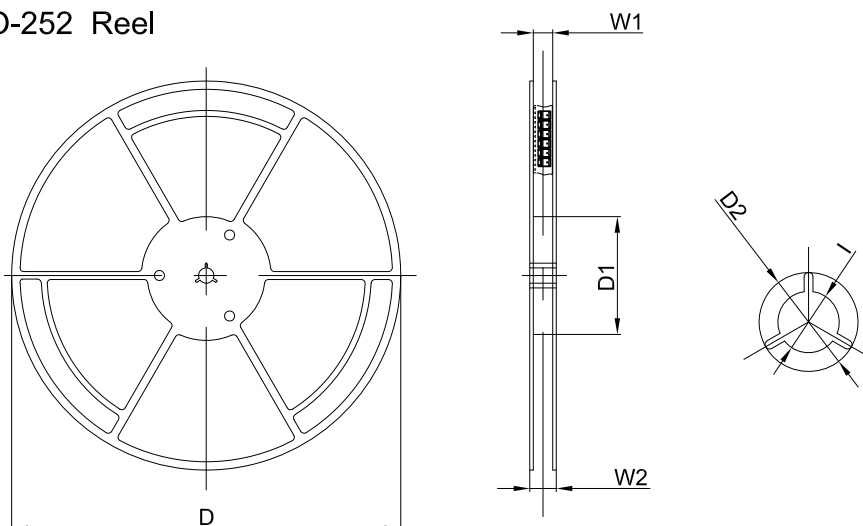


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

### 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	