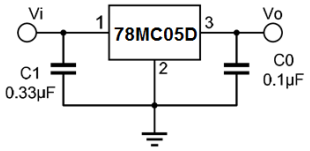
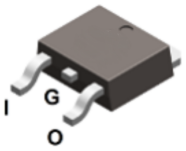
78MC05D

Three-terminal Positive Voltage Regulator

Features

- If adequate heat sinking is provided, they can deliver over 1.0A output current
- Thermal overload protection
- Short circuit protection
- Output transistor SOA protection





TO-252

Mechanical Data

- Case: TO-252
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
78MC05D	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	78MC05D

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	V_I	35	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	105	°C/W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	5	°C/W
Operating Temperature Range	T_{OPR}	-40 ~ +125	°C
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-65 ~ +150	°C

Electrical Characteristics (I_O = 500mA, V_I = 10V, C_I = 0.33μF, C_O = 0.1μF unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V_O	T_J = 25°C	4.8	5.0	5.2	V
		5mA < I_O < 1A, P_O < 15W 8V ≤ V_I ≤ 20V	4.75	5.00	5.25	V
Line Regulation	ΔV_O	7.5V ≤ V_I ≤ 20V, T_J = 25°C	-	4	20	mV
		8V ≤ V_I ≤ 12V, T_J = 25°C	-	2	10	mV
Load Regulation	ΔV_O	5mA ≤ I_O ≤ 1A, T_J = 25°C	-	9	25	mV
		0.25A ≤ I_O ≤ 0.75A, T_J = 25°C	-	4	13	mV
Quiescent Current	I_Q	T_J = 25°C	-	4.2	8	mA
Quiescent Current Change	ΔI_Q	5mA ≤ I_O ≤ 1A	-	0.03	0.5	mA
		8V ≤ V_I ≤ 25V, I_O = 0.5A	-	0.3	0.8	mA
Output Voltage Drift	ΔV_O /ΔT	I_O = 5mA, 0 ≤ T_J ≤ 125°C	-	0.8	-	mV/°C
Output Noise Voltage	V_N	10Hz ≤ f ≤ 100kHz, T_A = 25°C	-	42	-	μV/V_O
Ripple Rejection	RR	8V ≤ V_I ≤ 18V, f = 120Hz	62	73	-	dB
Dropout Voltage	V_D	I_O = 1A, T_J = 25°C	-	2	-	V
Output resistance	R_O	f = 1kHz	-	15	-	mΩ
Short Circuit Current	I_{SC}	V_I = 35V, T_A = 25°C	-	200	-	mA

TYPICAL CHARACTERISTICS (@ T_A = 25°C unless otherwise specified)

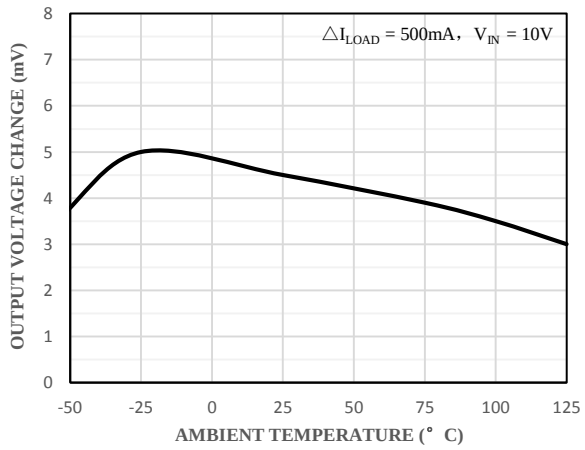


Fig 1 Load Regulation vs. Temperature

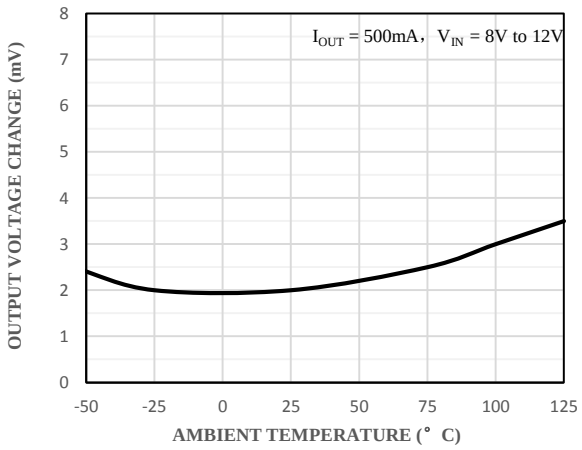


Fig 2 Line Regulation vs. Temperature

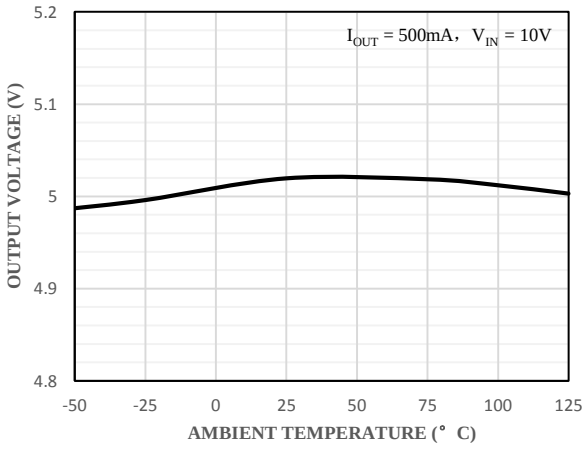


Fig 3 Output Voltage vs. Temperature

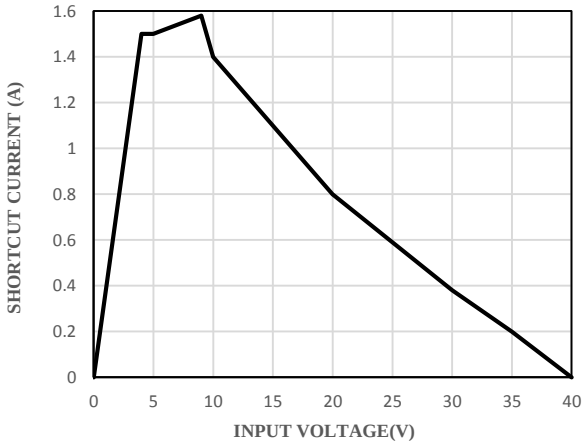


Fig 4 Shortcut Current vs. Input Voltage

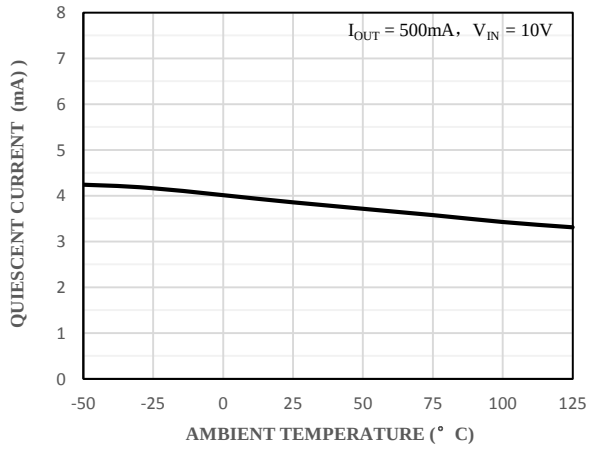


Fig 5 Quiescent Current vs. Temperature

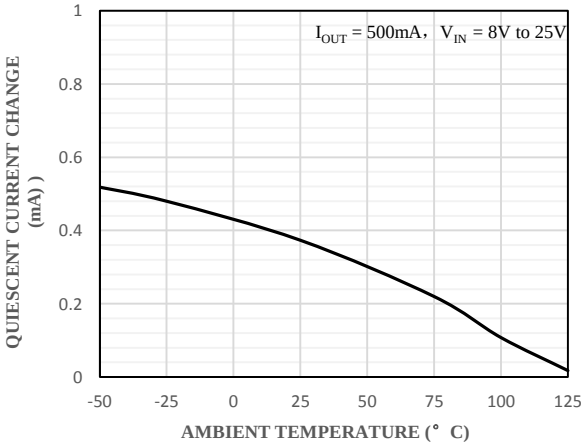


Fig 6 Quiescent Current Change vs. Temperature

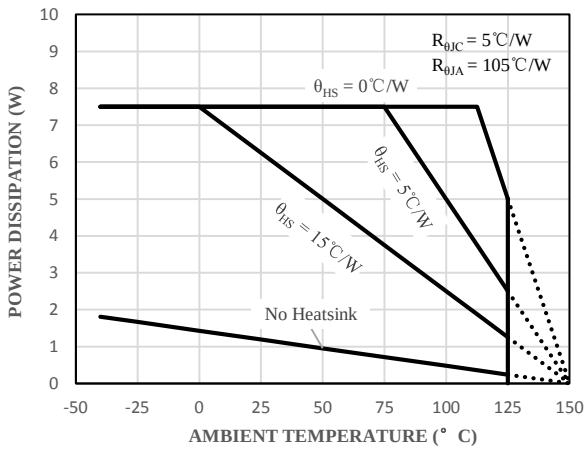


Fig 7 Power Dissipation vs. Temperature

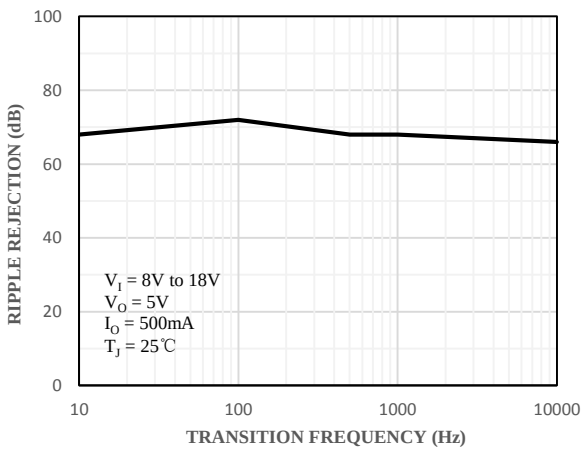
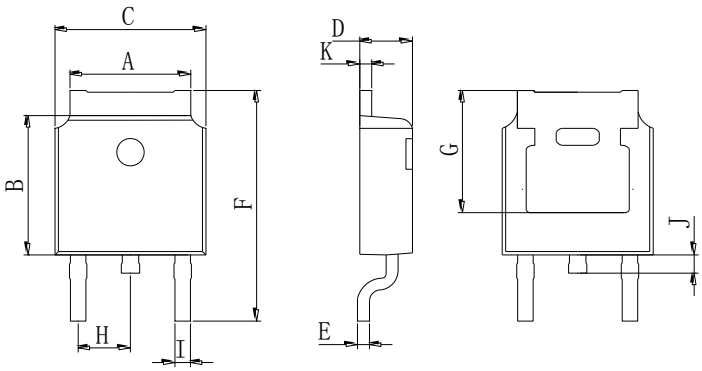


Fig 8 Ripple Rejection vs. Transition Frequency

78MC05D

Three-terminal Positive Voltage Regulator

Package Outline Dimensions (Unit: mm)



TO-252		
Dimension	**Min.**	**Max.**
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.70
K	0.40	0.60

Mounting Pad Layout (Unit: mm)

TO-252