

EN55022B的限制并有12 dB μ V的裕量。合成RCD 齐纳管箝位 (R3、C5、D6和VR1) 将漏极电压尖峰控制在内部集成的MOSFET的700 V额定电压之下。

如果去掉JP3, 外部可变电阻 (R20) 可以通过调节R12两端的电压来调整输出电压。外加的电机调速电压 (3.6到10 VDC) 通过改变R12和VR2的节点电压, 来有效地调节输出电压。如果外加调节电压低于3.6 VDC左右, 二极管D12阻止反向电流流过R19。

设计要点

- 外部供电电压按照如下方式调节电机速度: ≤ 3.6 V设置输出电压为12 V左右 (最高电机速度), ≥ 7 V设置输出电压为大约2 V(最低电机速度)。
- 如果使用电位器速度控制电路, 跳线J3必需从PCB上取掉。
- 如果电机被堵转超过30 ms, U1的锁存关断功能将被触发, MOSFET开关操作会停止直到交流输入断开并重新上电。如果不需要锁存关断功能, 这个功能可以被禁止, 并且不需安装D5、C7、R5和R6。

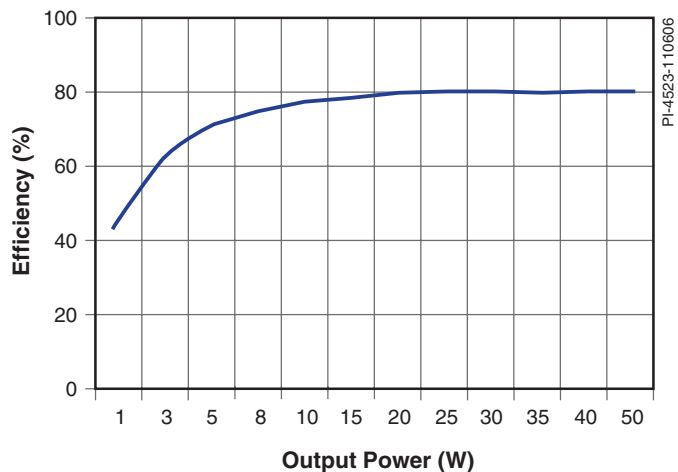


图2. 整个电机负载范围内的效率

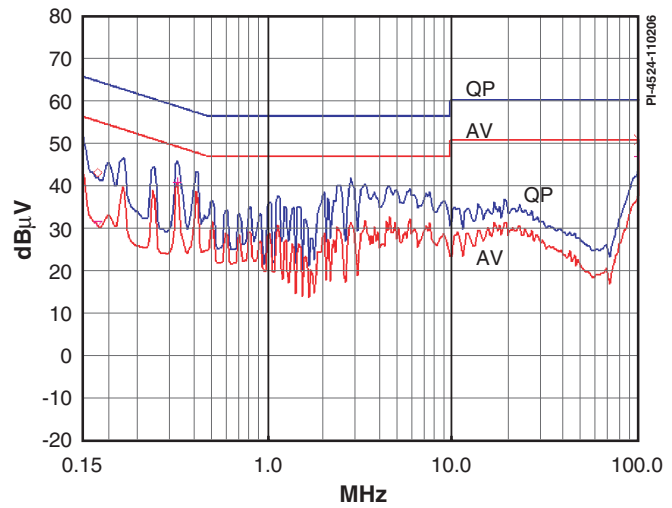


图3. 传导EMI: 230 VAC 输入, $I_{OUT} = 4$ A (48 W)

变压器参数

磁芯材料	PC40EE25-Z
骨架	EE25 Vertical
绕组细节	1/2 Primary: 19T, 2 × 31 AWG Bias: 5T, 2 × 29 AWG Secondary: 4T, 4 × 23 AWG Shield: 7T, 4 × 23 AWG 1/2 Primary: 19T, 2 × 31 AWG
绕线顺序 (引脚号)	1/2 Primary (2-3), Bias (5-4), Secondary (9-10, 7-8), Shield (1-NC), 1/2 Primary (3-1)
电感	145 μ H
漏感	5.4 μ H
初级谐振频率	3.4 MHz (minimum)

表1. 变压器设计参数。AWG = 美国绕线规格
TIW = 三层绝缘线, NC = 没有连接, FL = 飞线

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