

NXP internally insulated power package SOT78D



Rugged performer for high power applications

For high power devices requiring electrical isolation with good thermal performance, ease of handling and assembly, NXP's SOT78D package is the perfect choice. Our optimized die-bonding and assembly techniques give the housing a lower junction-to-heatsink thermal resistance, allowing cooler operation and better reliability in high current, high power applications.

Key benefits

- ▶ Isolated package with 2.5 kV RMS blocking capability
 - safe mounting to earthed heatsinks
 - more than one triac on one heatsink
- ▶ Easy handling and assembly
- ▶ Same assembly equipment and techniques as TO220AB
- ▶ More mechanically rugged than SOT186A
- ▶ Triacs run cooler in real applications
- ▶ Reduces thermal stress, increasing lifetime
- ▶ BTA4**Y high T_{jmax} types for high temperature applications

Key features

- ▶ Lowest junction-to-heatsink thermal resistance of any isolated mounting arrangement
- ▶ Lower junction temperature at high current / high power
- ▶ Typically 10% lower $R_{th(j-mb)}$ than competitor's triacs in internally insulated TO220AB
- ▶ BTA4**Y types are specified at T_{jmax} of 150 deg C as standard

Key applications

- ▶ Power tools
- ▶ Large appliances
 - washing machines
 - air conditioners
 - refrigeration
- ▶ High current / high temperature appliances
 - vacuum cleaners
 - heating appliances
 - cooking appliances
- ▶ Lighting
 - high in-rush incandescent lamp loads
 - high current lamp dimmers

Our new internally insulated package SOT78D complements the all-plastic, isolated package SOT186A. However due to its improved thermal performance this easy-to-use convenient package is a better alternative for higher current triacs, especially if they need to be electrically isolated from their heatsink

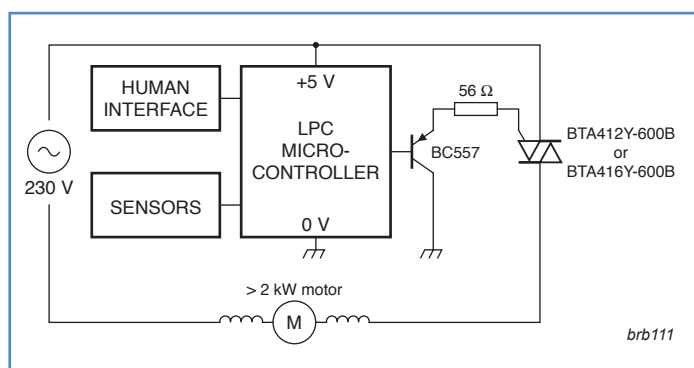
Providing 2.5 kV RMS isolation, the SOT78D is ideal for applications that require isolated mounting to the heatsink with good thermal performance. It also offers the same ease of handling and assembly as a standard TO220 (SOT78) package.

The SOT87D may be spring-clip, screw or rivet mounted to the heatsink. Riveting is possible as there is no plastic insulation that can be cracked by riveting operations. Furthermore, there is less risk of damaging the package by rough handling and poor assembly techniques, such as excessive shock loading, screw torque or clamping force, or the omission of washers for load spreading.

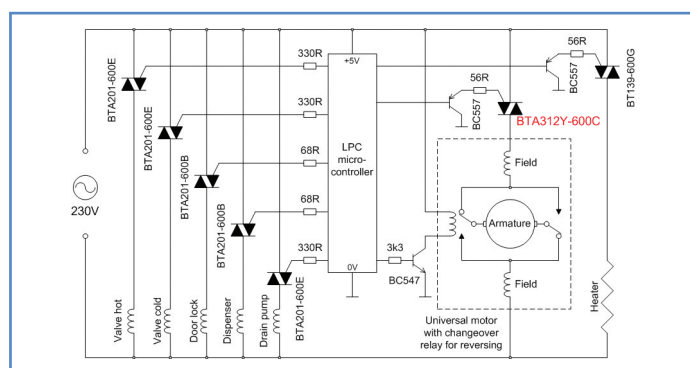
Product overview

Currently available devices include three ranges of Hi-Com triacs. (SOT78D has a 'Y' package identifier – e.g. BTA312Y-600C):

- ▶ BTA312Y-C series
- ▶ BTA412Y-B and -C series
- ▶ BTA416Y-B and -C series



Vacuum cleaner motor control unit using a BTA412Y-600B or BTA416Y-600B



Universal motor with changeover relay for reversing benefits from using the BTA312Y-600C

Part No.	V_{DRM} (V)	$I_{T(RMS)}$ (A)	I_{TSM} @ 20ms (A)	I_{GT} I - III (mA)	dV_D/dt @ $T_j = 125^\circ C$ (V/ μs)	$R_{th(j-mb)}$ (K/W)	$T_{j(max)}$ (deg C)
BTA312Y-600C	600	12	100	35	500	2.3	125
BTA312Y-800C	800	12	100	35	500	2.3	125
BTA412Y-600B	600	12	140	50	1000	2.1	150
BTA412Y-600C	600	12	140	35	500	2.1	150
BTA412Y-800B	800	12	140	50	1000	2.1	150
BTA412Y-800C	800	12	140	35	500	2.1	150
BTA416Y-600B	600	16	160	50	1000	1.9	150
BTA416Y-600C	600	16	160	35	500	1.9	150
BTA416Y-800B	800	16	160	50	1000	1.9	150
BTA416Y-800C	800	16	160	35	500	1.9	150

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