Dual Cool™ Package PowerTrench® MOSFETs

Fairchild's Dual Cool™ packaging technology provides both bottom- and top-side cooling in the industry standard PQFN package which also provides performance flexibility for designers. With enhanced dual-path thermal performance and improved parasitics over its wire-bonded predecessors, the use of a heat sink provides even more impressive results. Lab testing proves that when a heat sink is used with Dual Cool package technology, synchronous buck converters deliver higher output current and increased power density. With Fairchild's trench silicon technology, Dual Cool packaging proves to be a clear leader in both power density and thermal performance. Dual Cool solutions are lead-free, RoHS-compliant, and available in 3.3 x 3.3, 5 x 6, and 8 x 8 PQFN packages.

Features

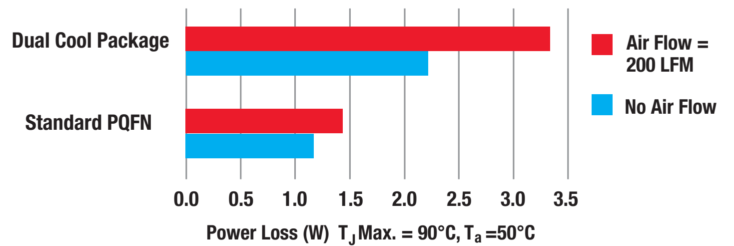
- Top-side cooling, lower thermal resistance from junction to top
- Same land pattern as 5 x 6 mm and 3.3 x 3.3 mm PQFN-JEDEC standard
- Allows higher current and power dissipation
- Highest power density for DC-DC applications
- Use with or without a heat sink, reduces the number of qualified components in the BOM
- Multiple suppliers without cross-licensing requirements
- High degree of production commonality with standard PQFN packaging
- 25V to 150V portfolio

Applications

- Point of Load (POL) synchronous-buck conversion
- Servers
- Telecommunications, routing, and switching
- Heat path from top only

Maximum Power Dissipation

Capable of >60% Better Thermal Performance



Environment: Minimum Pad, Heat Sink, 200 LFM Forced Air

5 x 6 Package Interconnect	Q_{JA} (°C/W)	(%) Improvement from Wire Package
PQFN Wire	27.1	—
PQFN Clip	23.8	13.9
Dual Cool Package	17.2	57.5

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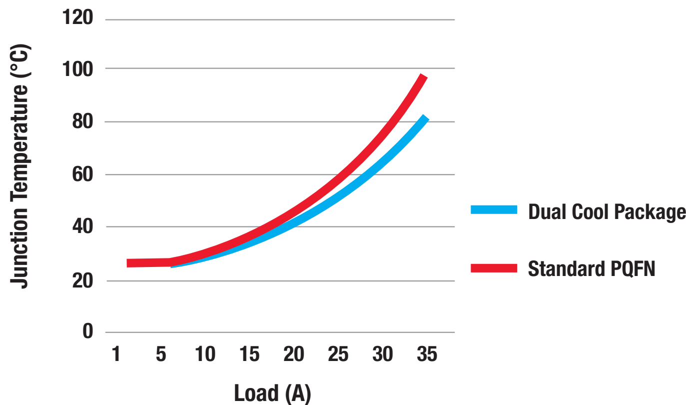
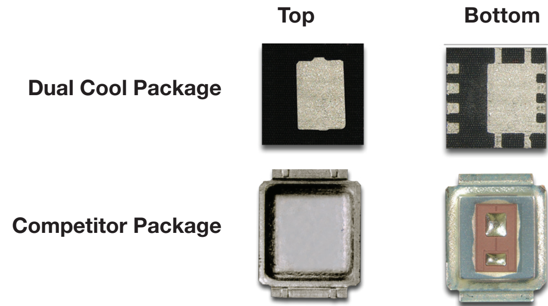
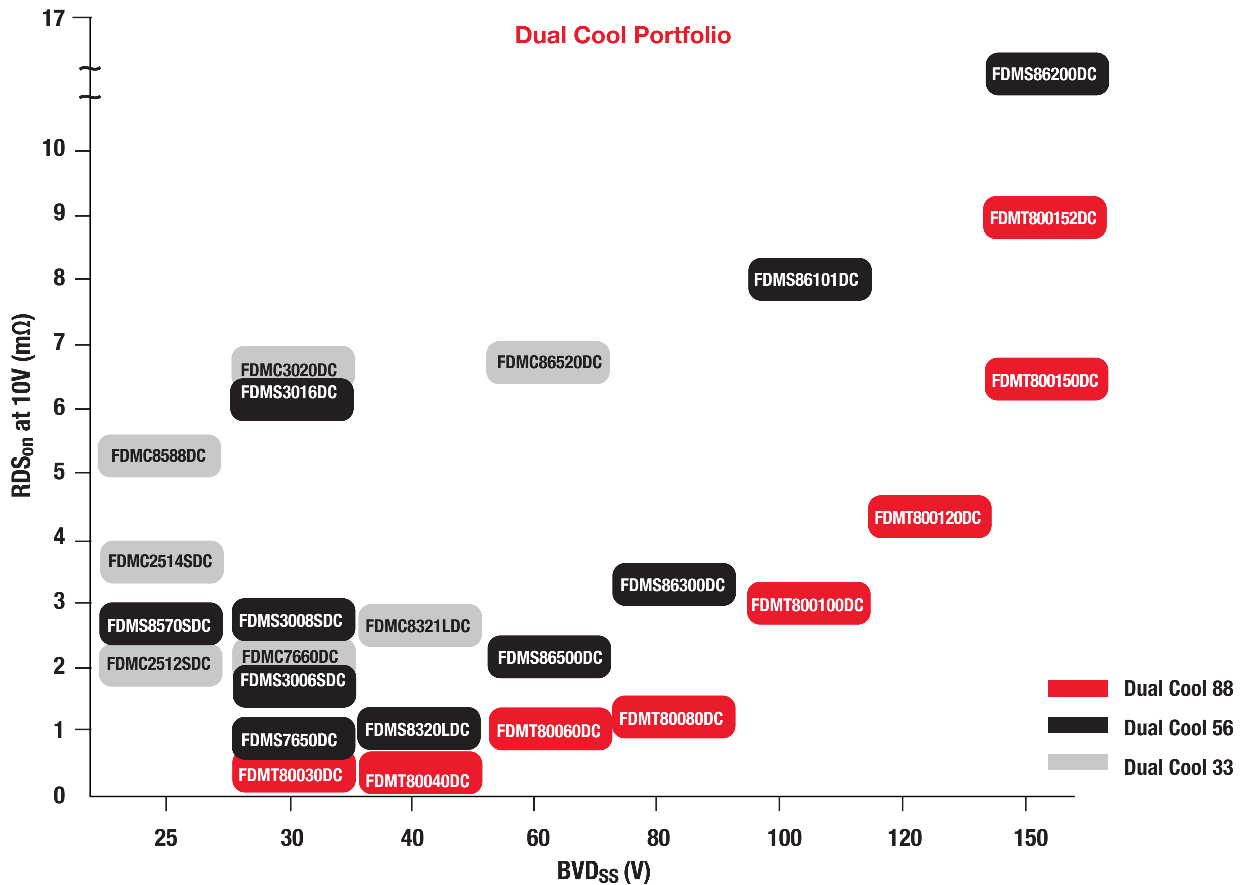




	Board Solderable Component Area	% Difference Solderable Area	Total Component Area (Max)
Dual Cool Package (3.3 x 3.3)	4.5 mm²	The new standard	11.56 mm²
Competitor	3 mm²	33% less	19.16 mm²



For more information on Dual Cool packaging and the complete portfolio, please visit **fairchildsemi.com/dualcool**

Silicon Valley Headquarters
Fairchild Semiconductor
3030 Orchard Parkway
San Jose, CA 95134
U.S.A.
dir +1 408-822-2000
fairchildsemi.com

Corporate Offices
Fairchild Semiconductor
82 Running Hill Road
South Portland, ME 04106
U.S.A.
dir +1 207-775-8100
fairchildsemi.com

Fairchild Semiconductor
Asia Pacific Pte Ltd.
54 Serangooon North Ave 4
#02-01
Singapore 555854
dir +65 6496-8888

Fairchild Semiconductor GmbH
Europe - Germany
Einsteinring 28
85609 Aschheim / Muenchen
Germany
dir +49 8999 8876 0

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