

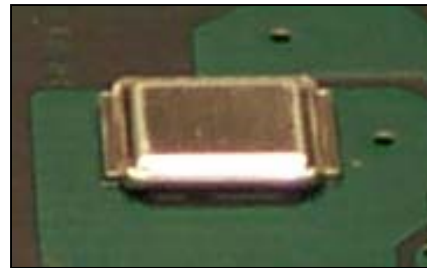
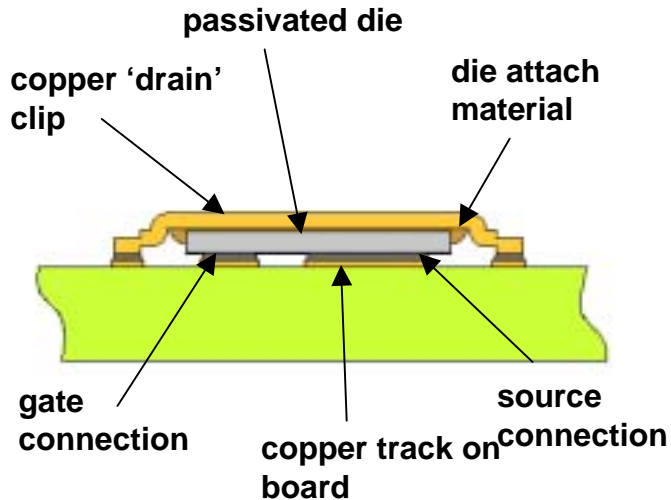
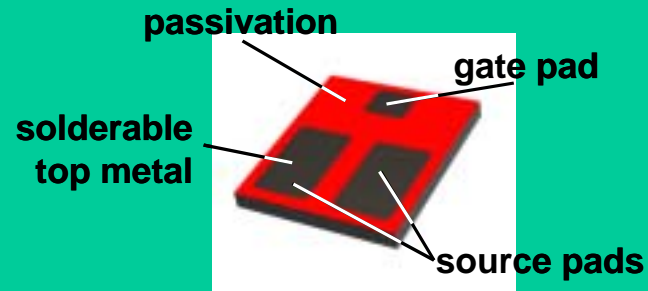
DirectFET™ Delivering Double Density....Again!



Dual Side Cooled DirectFET MOSFETs

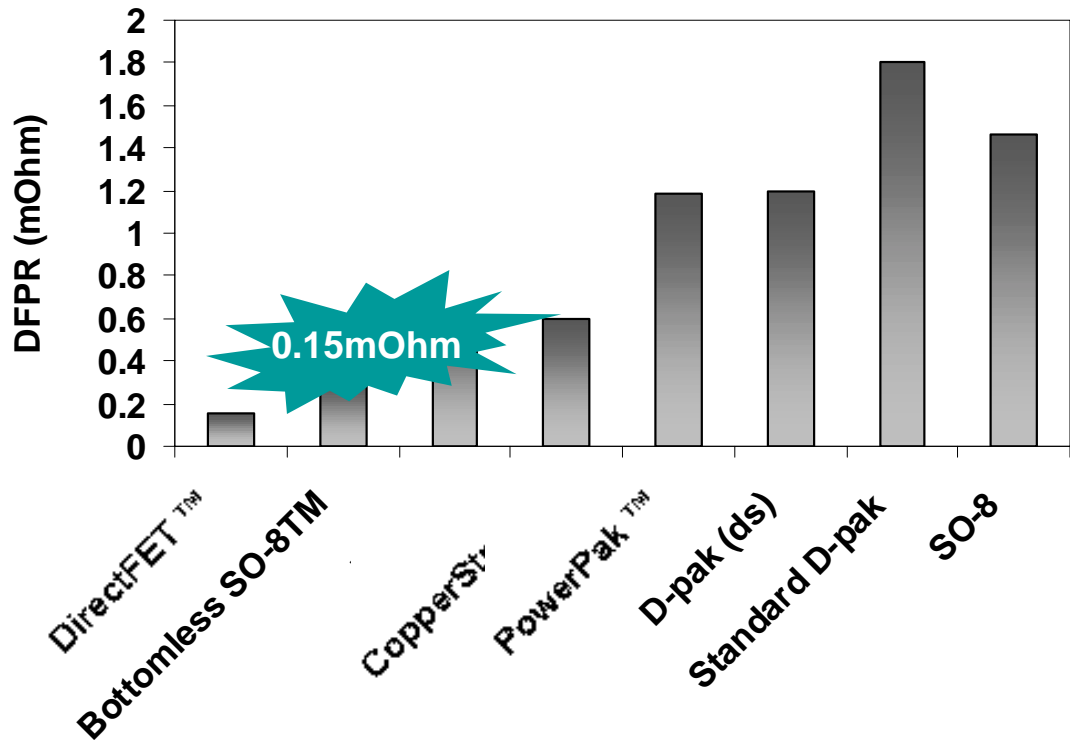
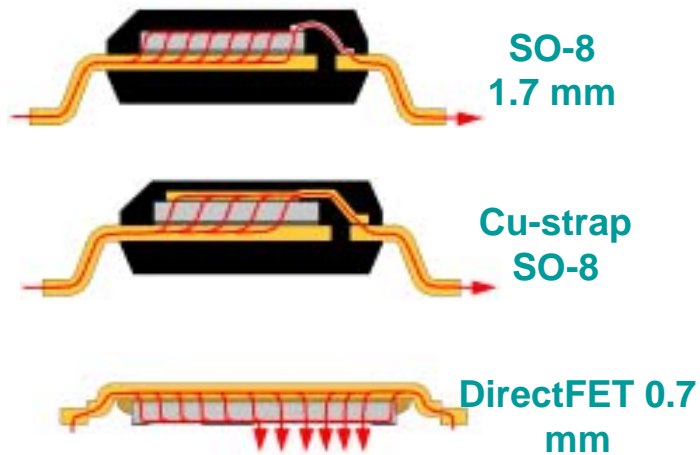
DirectFET™ Technology Review

A new interconnect methodology facilitated by a proprietary passivation system



Improvements In Conduction Performance In SMT Package: DirectFET™ Still The Best!

- Reducing Die-Free Package Resistance by over 90% over SO-8



Double Power Density With DirectFET™ Packaging

First ever surface mount part compatible with double sided cooling

- Double sided cooling in SO-8 footprint reduces temperature by 20°C at full load
- Less than 1°C/W Rth(junction-pcb) in same footprint as SO-8

Higher current capability

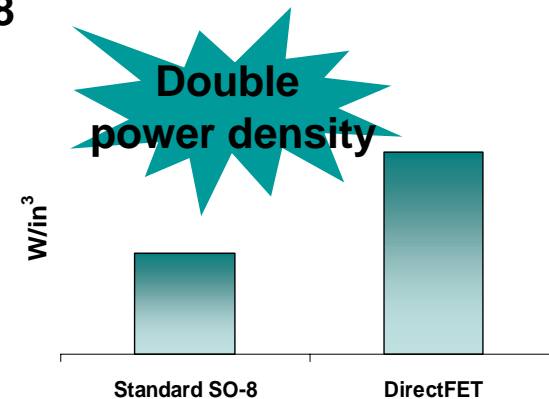
- 86% lower die free package resistance (DFPR) than SO-8
- 45% lower RDS(on) (3.5mOhm) than best SO-8

Smaller size

- 0.7mm profile compared to 1.75mm for SO-8
- Direct chip attach with no wire bonding

Compatible with present and future manufacturing standards

- Bromide and lead-free packaging
- Compatible with high volume board assembly equipment



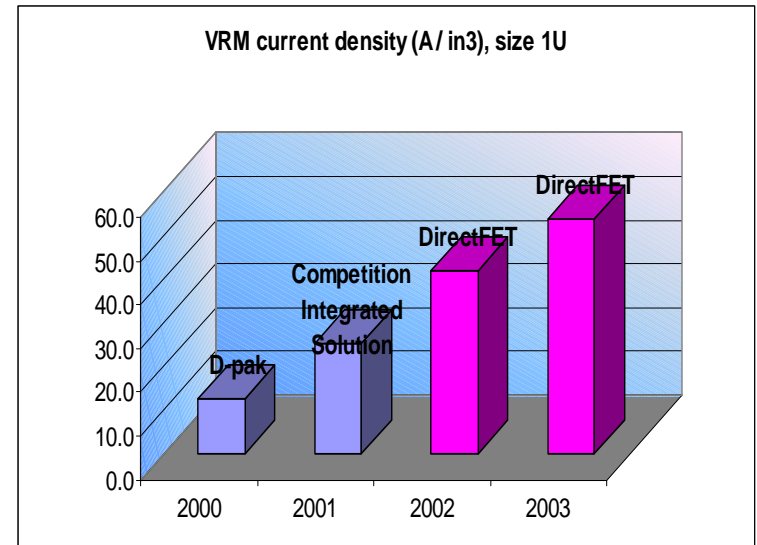
DirectFET™ Power Density vs SO-8

Circuit	30A / Phase	Area (in ²)	Amps (in ²)
4-Phase Converter	Single Side Cooled SO-8	10.5	11.4
	Dual Side Cooled DirectFET™	3.4	35.2

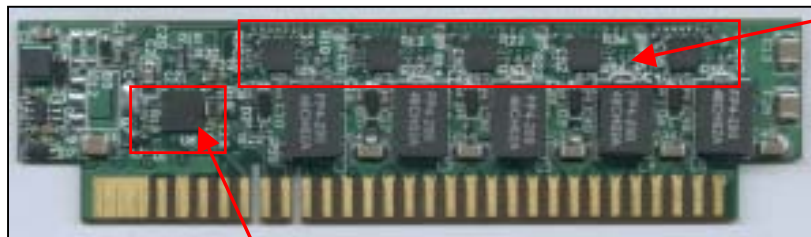
Double Power Density With DirectFET Packaging

First ever surface mount part compatible with double sided cooling in u-8 outline

- Double sided cooling in u-8 footprint reduces Control FET by 50%
- Still Less than 1°C/W Rth(junction-pcb) in same footprint as u-8



DirectFET 1U VRM 10.1 Demo Board



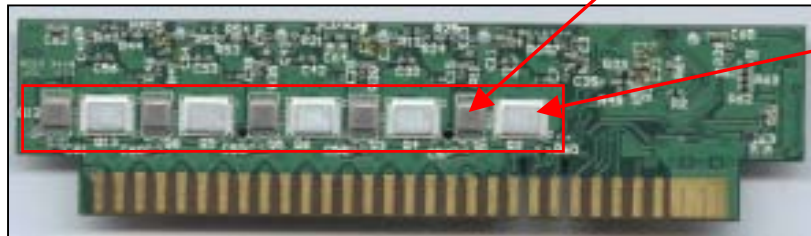
IR3087 Phase IC's

Front

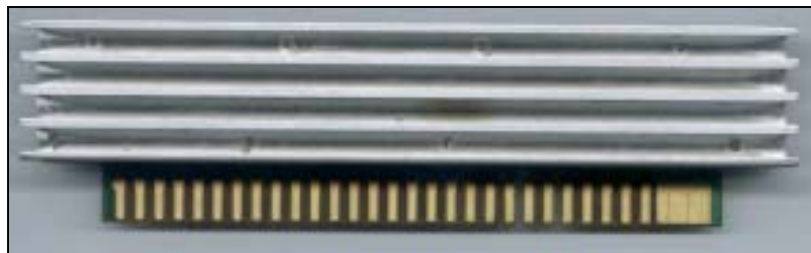
IR3081 Control IC

IRF6608 DirectFETs

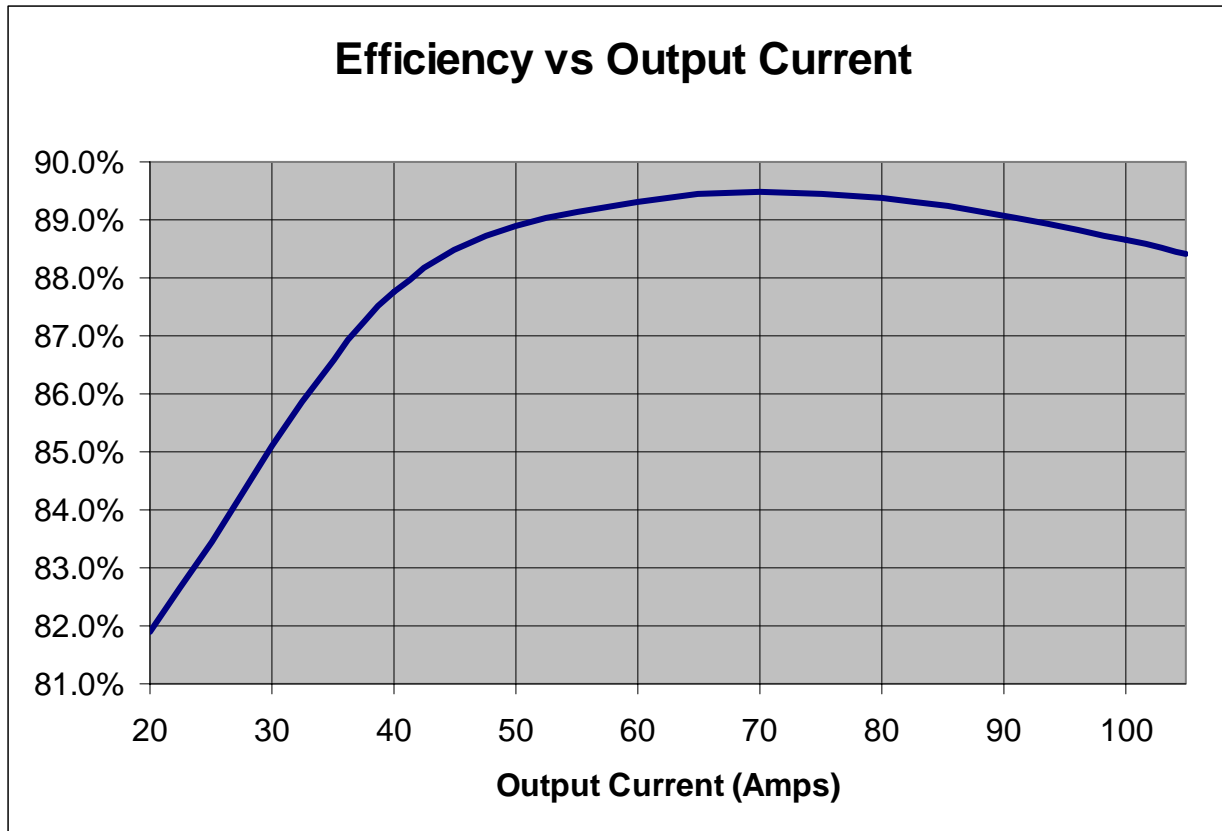
IR6618 DirectFETs



Back

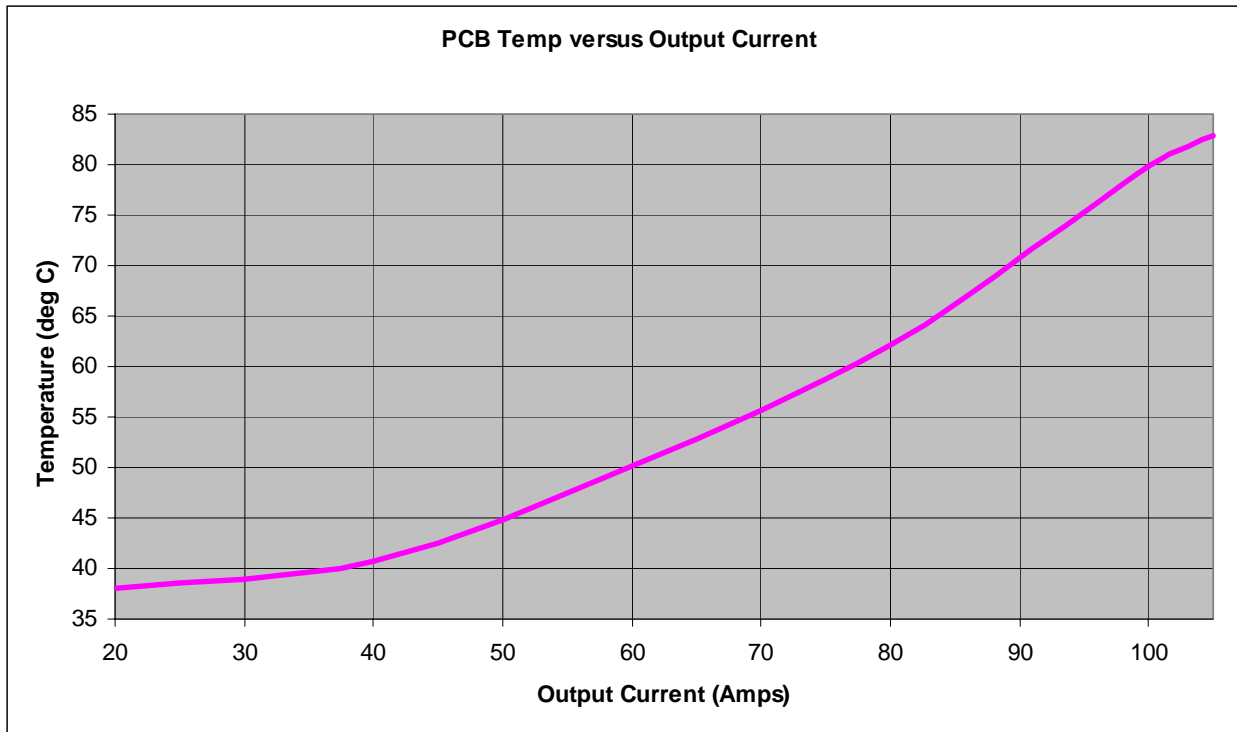


DirectFET™ 1U VRM 10.1 Demo Board



- Operating Conditions:**
- $V_i=12V$
 - $V_{DAC}=1.35V$
 - $Freq. = 400KHz$
 - $Airflow=400LFM$
 - $T_a = 25C$
 - 0.985 x 3.8 incl. connector
 - Ckt area 0.65 x 3.8 = 2.5 in²
 - 5 phases, 10 DirectFETs

DirectFET™ 1U VRM 10.1 Demo Board



- Operating Conditions:**
- $V_i=12V$
 - $V_{DAC}=1.35V$
 - Freq. = 400KHz
 - Airflow=400LFM
 - $T_a = 25C$
 - With VR 10 sized heat sink with best TIM