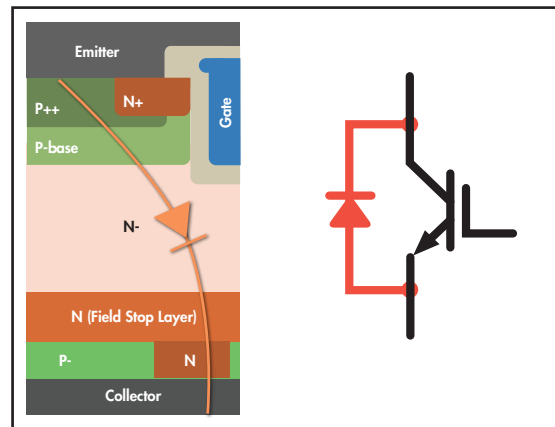


HIGH-EFFICIENCY IGBTs FOR INDUCTION HEATING

Designers who need energy-efficient, highly reliable IGBTs for induction heating applications now have many solutions available thanks to Fairchild's enabling Field Stop Trench Shorted-Anode IGBT technology. Optimized for induction heating cooktops, rice cookers and microwave ovens, these IGBTs contain high-speed switching characteristics that are able to attain a balance between switching and conduction losses. In addition, Fairchild's solutions notably lead the market with their best-performance ratio, as they ensure system efficiency and minimize total losses.

Features and Benefits

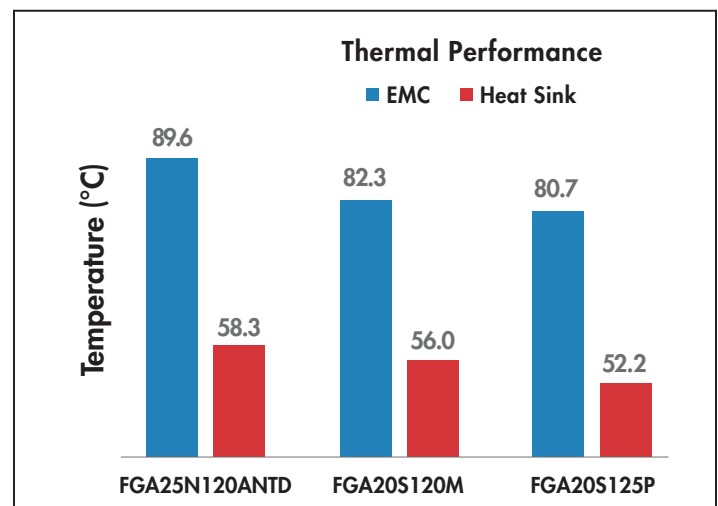
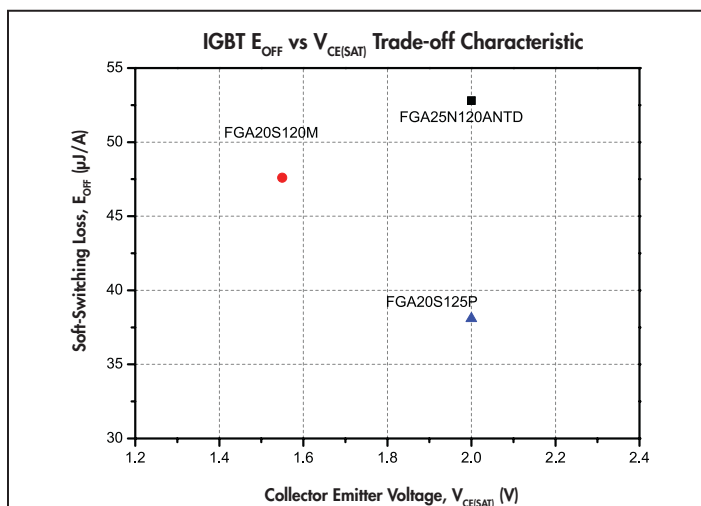
- Controlled by Pulse Frequency Modulation (PFM): fixed off-time, variable on-time
- Zero Voltage Switching (ZVS) turn-on
- Quasi Zero Voltage Switching (ZVS) turn-off
- FGAXxSxxx: S denotes Shorted-Anode Trench IGBTs (1-IGBT in TO-3P)
- FGAXxNxxx: N denotes Field Stop IGBT (1-IGBT + 1-diode in TO-3P)
- Compact design with best-performance ratio
- Single Field Stop IGBT: no external anti-parallel diode required
- Single shorted-anode IGBT can be used
- Higher output power (2 kW) and high current capabilities



Field Stop Trench Shorted-Anode IGBT Technology with Embedded Diode

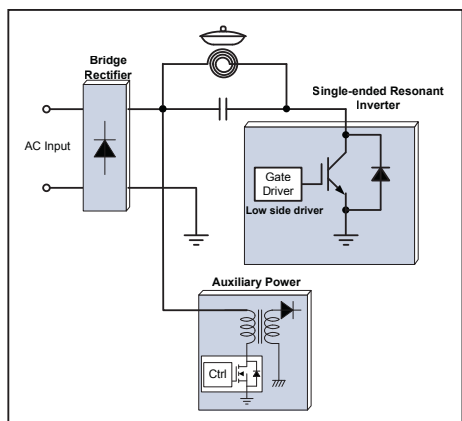
Applications

- Induction heating appliances; rice cookers, table-top cookers, cooktop cookers, printers
- Microwave ovens
- Soft-switching applications

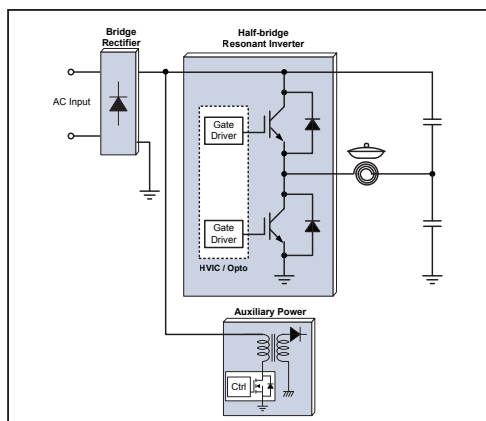


For data sheets, application notes, samples and more, please visit: www.fairchildsemi.com

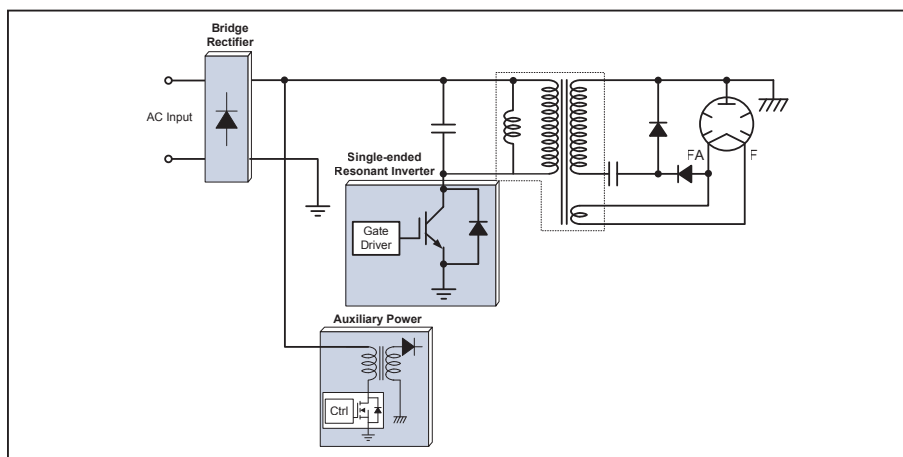
Induction Heating Applications and Topologies



IH Rice Cookers, Table-top Cookers Using Single-ended Inverter (Voltage-Resonant) Topology



Large Induction Cooktops Using Half-Bridge Inverter (Current-Resonant) Topology



Microwave Ovens Using Single-ended Inverter (Voltage-Resonant) Topology

Field Stop Trench Shorted-Anode IGBTs								
Part Number	Built-in Diode	BV_{CES} (Min) (V)	Fall Time	I_C (Max)	$R_{\theta JC}$ (°C/W)	$V_{CE(sat)}$ (Typ) (V)	$V_{GE(th)}$ (Min) (V)	Package
FGA50S110P*	Yes	1100	184ns@175°C	30A@100°C	0.6	2.06	4.5	TO-3P 3L
FGA15S125P	Yes	1250	250ns@175°C	15A@100°C	1.1	2.25	4.5	TO-3P 3L
FGA20S125P	Yes	1250	250ns@175°C	20A@100°C	0.6	2	4.5	TO-3P 3L
FGA25S125P	Yes	1250	232ns@175°C	25A@100°C	0.6	1.8	4.5	TO-3P 3L
FGH30S130P	Yes	1300	270ns@175°C	30A@100°C	0.3	1.75	4.5	TO-247 3L
FGA30S120P	Yes	1300	270ns@175°C	30A@100°C	0.3	1.75	4.5	TO-3P 3L
FGA20S140P	Yes	1400	356ns@175°C	20A@100°C	0.55	1.9	4.5	TO-3P 3L

* In Development

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