

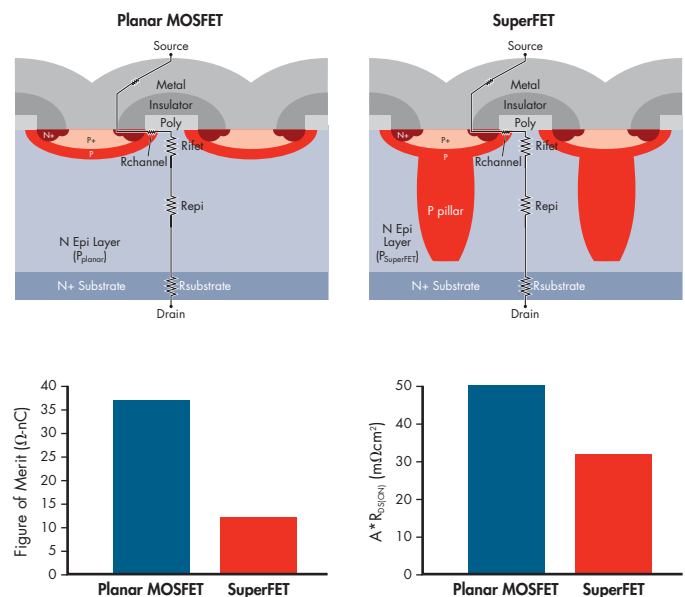
SuperFET™ MOSFETs

Fairchild's Offering

SuperFET™ technology utilizes a stripe-based horizontal layout with vertical deep p-stripes, which significantly reduces on-resistance and enhances avalanche energy in commutation mode. It implements a compensation region using multi-epi layers which lower resistance in the vertical drift region of a MOSFET in order to improve the on-resistance.

Overview Features & Benefits

- Ultra low $R_{DS(ON)}$ resulting in low conduction losses and improved efficiency in end-applications
- Best-in-class di/dt and dv/dt rating that allows the devices to operate at higher frequencies, ensures ruggedness and reliability
- Lower switching losses due to lower effective output capacitance ($C_{OSS,eff}$) that allows high frequency switching and better efficiency in resonant mode topologies
- Ultra low gate charge that improves switching performance

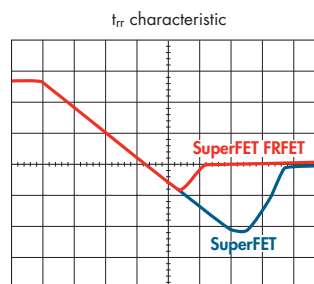


SuperFET Fast Recovery MOSFETs (FRFET™)

Combining SuperFET technology with a lifetime killing process, FRFET™ offers over 50% improvement in diode reverse recovery characteristics (Q_{rr} , T_{rr}) which is ideal for Phase-shifted full bridge topologies (ZVS) and Half/Full bridge topologies (Hard Switching).

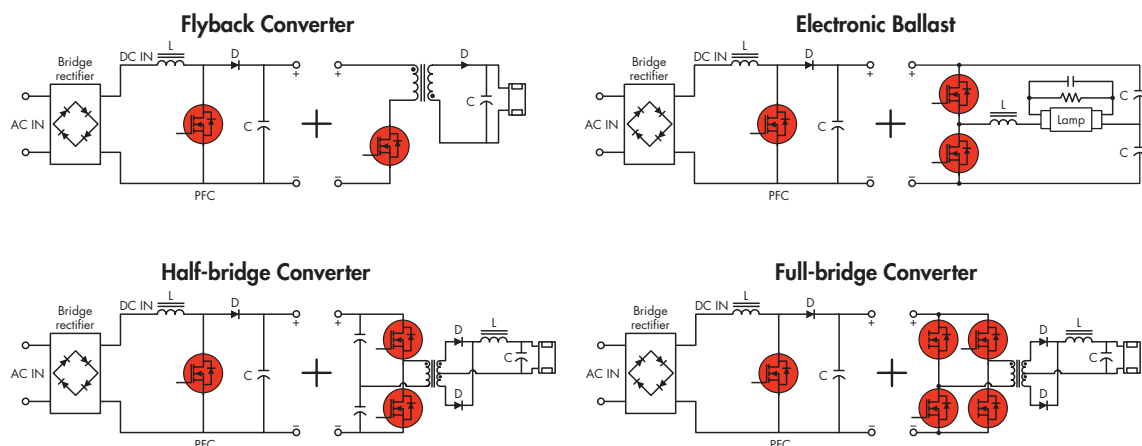
Overview Features & Benefits

- Lower T_{rr} and Q_{rr} enable to operate at high operating frequency up to 250kHz
- Improved dv/dt and EAS characteristics increase ruggedness
- Enhanced EMI
- Low system power loss



Applications

- PFC for high efficiency SMPS
- Server/telecom Power SMPS
- Flat panel TV SMPS
- Electronic ballast



Product Portfolio

Specification		TO-220	TO-220F	TO-3PN	TO-247	D ² PAK (TO-263)	I ² PAK (TO-262)	DDPAK (TO-252)	IPAK (TO-251)
$R_{DS(ON)}$ (Ω)	1.2							FCD4N60	
I_D (A) @ 25°C	3.9								
$Q_{g, typ}$ (nC)	12.8								
$R_{DS(ON)}$ (Ω)	0.95							FCD5N60	FCU5N60
I_D (A) @ 25°C	4.6								
$Q_{g, typ}$ (nC)	16								
$R_{DS(ON)}$ (Ω)	0.6	FCP7N60	FCPF7N60				FCI7N60	FCD7N60	FCU7N60
I_D (A) @ 25°C	7								
$Q_{g, typ}$ (nC)	23								
$R_{DS(ON)}$ (Ω)	0.38	FCP11N60	FCPF11N60			FCB11N60	FCI11N60		
I_D (A) @ 25°C	11								
$Q_{g, typ}$ (nC)	40								
$R_{DS(ON)}$ (Ω)	0.38	FCP11N60F	FCPF11N60F			FCB11N60F			
I_D (A) @ 25°C	11	$T_{rr} (typ) = 120nS$	$T_{rr} (typ) = 120nS$			$T_{rr} (typ) = 120nS$			
$Q_{g, typ}$ (nC)	40								
$R_{DS(ON)}$ (Ω)	0.26	FCP16N60	FCPF16N60	FCA16N60					
I_D (A) @ 25°C	16								
$Q_{g, typ}$ (nC)	55								
$R_{DS(ON)}$ (Ω)	0.19	FCP20N60	FCPF20N60	FCA20N60	FCH20N60	FCB20N60			
I_D (A) @ 25°C	20								
$Q_{g, typ}$ (nC)	75								
$R_{DS(ON)}$ (Ω)	0.26	FCP20N60S	FCPF20N60S	FCA20N60S					
I_D (A) @ 25°C	20								
$Q_{g, typ}$ (nC)	55								
$R_{DS(ON)}$ (Ω)	0.19			FCA20N60F		FCB20N60F			
I_D (A) @ 25°C	20			$T_{rr} (typ) = 160nS$		$T_{rr} (typ) = 160nS$			
$Q_{g, typ}$ (nC)	75								
$R_{DS(ON)}$ (Ω)	0.26	FCP20N60FS*	FCPF20N60FS*	FCA20N60FS*					
I_D (A) @ 25°C	20	$T_{rr} (typ) = 170nS$	$T_{rr} (typ) = 170nS$	$T_{rr} (typ) = 170nS$					
$Q_{g, typ}$ (nC)	57								
$R_{DS(ON)}$ (Ω)	0.07			FCA47N60	FCH47N60				
I_D (A) @ 25°C	47								
$Q_{g, typ}$ (nC)	210								
$R_{DS(ON)}$ (Ω)	0.073				FCH47N60F				
I_D (A) @ 25°C	47				$T_{rr} (typ) = 240nS$				
$Q_{g, typ}$ (nC)	210								

Note: Red text indicates FRFET; * in development