

Table 4. Estimating the Significant Parameters of the Power Semiconductors

Topology	Bipolar Power Switch		MOSFET Power Switch		Rectifier(s)	
	V _{CEO}	I _C	V _{DSS}	I _D	V _R	I _F
Buck	V _{in}	I _{out}	V _{in}	I _{out}	V _{in}	I _{out}
Boost	V _{out}	$\frac{2.0P_{out}}{V_{in(min)}}$	V _{out}	$\frac{2.0P_{out}}{V_{in(min)}}$	V _{out}	I _{out}
Buck/Boost	V _{in} - V _{out}	$\frac{2.0P_{out}}{V_{in(min)}}$	V _{in} - V _{out}	$\frac{2.0P_{out}}{V_{in(min)}}$	V _{in} - V _{out}	I _{out}
Flyback	1.7 V _{in(max)}	$\frac{2.0P_{out}}{V_{in(min)}}$	1.5 V _{in(max)}	$\frac{2.0P_{out}}{V_{in(min)}}$	10 V _{out}	I _{out}
1 Transistor Forward	2.0 V _{in}	$\frac{1.5P_{out}}{V_{in(min)}}$	2.0 V _{in}	$\frac{1.5P_{out}}{V_{in(min)}}$	3.0 V _{out}	I _{out}
Push-Pull	2.0 V _{in}	$\frac{1.2P_{out}}{V_{in(min)}}$	2.0 V _{in}	$\frac{1.2P_{out}}{V_{in(min)}}$	2.0 V _{out}	I _{out}
Half-Bridge	V _{in}	$\frac{2.0P_{out}}{V_{in(min)}}$	V _{in}	$\frac{2.0P_{out}}{V_{in(min)}}$	2.0 V _{out}	I _{out}
Full-Bridge	V _{in}	$\frac{1.2P_{out}}{V_{in(min)}}$	V _{in}	$\frac{1.2P_{out}}{V_{in(min)}}$	2.0 V _{out}	I _{out}