

Two-Wheelers: EV and Conventional

Full range of active discrete parts to support emission control, battery charging and protection



Two-wheelers, both EV and conventional are important source of movement. World is having challenges to conserve energy and environmental balance. Therefore, EV draws attention against these challenges. Whereas, emission control obligations encourage innovations and technologies for better solutions. Our Rectifier Diodes, Small signal BJTs, HV MOSFETs, Zeners, Schottky, Bridges, TVS/ESD can operate at high frequencies to provide better efficiencies, better heat dissipation, protection from current/voltage surges, and better emission control. The newer technologies in focus are Smart Ignition(SI), Voltage Regulator & Rectifier (VRR), Electronic Fuel Injection (EFI), Sensorless Integrated Starter Generator (ISG), Automated Manual Transmissions (AMT), etc.

➤ FRED

- Best Trade-off on V_F & t_{rr}
- Soft Recovery Switching
- High Junction Temperature 175°C
- Low Leakage Current
- Low Reverse Recovery Charge and Time

➤ Low $V_{CE(sat)}$ BJT

- Low $V_{CE(sat)}$ Voltage
- Optimized Performance
- Smaller Space, Simple PCB Layout
- High Collector Current, High DC Gain.

➤ HV MOSFETs

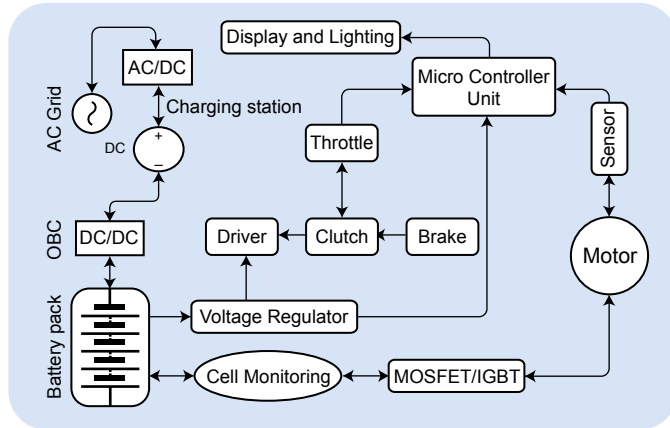
- Low $R_{DS(ON)}$
- High Speed Switching
- Low Conduction Losses
- Low Switching Losses
- 100% Avalanche Energy Tested



➤ Schottky

- Low V_F & t_{rr}
- High Junction Temperature 175°C
- Low Reverse Recovery Charge
- Low Leakage Current

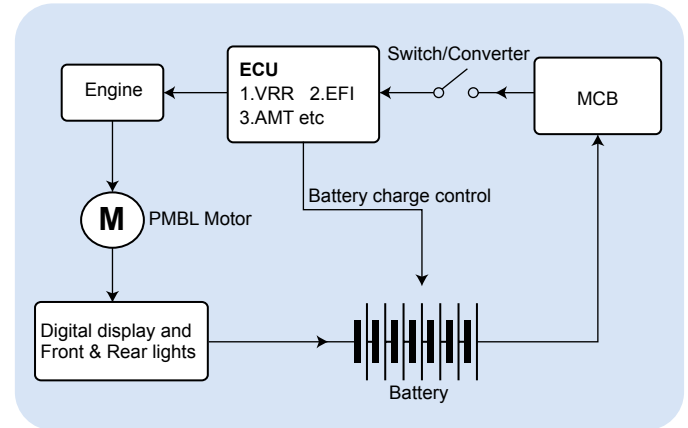
➤ E-Bike Block Diagram



➤ Protection Devices

- ESD for Air and Contact Protection Up to 30kV
- SMD Small Packages for Size Constraints
- TVS for Surge Protection
- Surge Protection Up to 6.6kW Peak Power

➤ 2-Wheelers Block Diagram



Recommended Products

➤ FRED

Part Number	Type	I_F	V_{RRM} Max.	t_{rr}	$V_F @ I_F$ Max.	$I_R @ V_R$ Max.	Package
		A	V	ns	V	μA	
QR406X	Standard	4	600	35	1.45	3	TO-220AC/ ITO-220AC/ TO-263/ TO-252/ TO-3PL
QR606X		6	600	35	1.45	3	
QR806X		8	600	35	1.65	3	
QR1006X		10	600	35	1.55	3	
QR1506X		15	600	35	1.65	3	
QR3006RT		30	600	35	1.65	3	
QR60C06RT		60	600	65	1.37	3	
QRT8A06X	Low trr	8	600	28	2.4	1	
QRT10A06X		10	600	20	2.4	1	
QRT1506X		15	600	25	2.35	3	
QRT812X		8	1200	40	3.2	3	

➤ HV MOSFET

Part Number	Channel	V_{DS}	V_{GS}	I_D	$R_{DS(on)}$ Max. 10V	Package
		V	$\pm V$	A	m Ω	
PJU6NA40	Planner N type	400	30	6	950	TO-251AA
PJD6NA40		400	30	6	950	TO-252AA
PJU8NA50		500	30	8	900	TO-251AA
PJD8NA50		500	30	8	900	TO-252AA
PJD60R390E	Super Junction N type	600	20	11	390	
PJD60R540E		600	20	9	535	
PJD60R620E		600	20	7	620	
PJU60R980E		600	20	4	980	TO-251AA
PJD60R980E		600	20	4	980	TO-252AA

➤ SiC Schottky

Part Number	AEC-Q101 Qualified	V_{RRM} Max.	I_F	$V_F @ I_F$ Typ	PD	Package
		V	A	V	W	
SiC02A065T-AU	Y	650	2	1.9	68	TO-220AC
SiC04A065T-AU		650	4	1.9	75	
SiC06A065T-AU		650	6	1.9	88	
SiC08A065T-AU		650	8	1.9	100	
SiC10A065T-AU		650	10	1.9	115	

➤ Protection: TVS (Uni/Bi)

Part Number	AEC-Q101 Qualified	P_D	V_{RWM}	V_{CC}	I_{PP}	Package
		W	V	V	A	
1.5SMCJ200/C-AU	Y	1500	200	358	4.1	SMC
1.5SMCJ200C/CA-AU		1500	200	324	4.6	
1.5SMCJ250/C-AU		1500	202	360	4.3	
1.5SMCJ210/C-AU		1500	210	376	4	
1.5SMCJ210C/CA-AU		1500	210	340	4.4	
1.5SMCJ250C/C-AU		1500	214	344	4.5	
1.5SMCJ220/C-AU		1500	220	394	3.8	
1.5SMCJ220/CA-AU		1500	220	356	4.2	

➤ Low $V_{CE(Sat)}$ BJT

Part Number	Type	V_{CBO} Max.	V_{CEO} Max.	I_C Max.	$V_{CE(sat)}$ Max. @ I_C	h_{FE}		Package
		V	V	mA	V	Min.	Max.	
BCP53-16-AU	PNP	-120	-100	-1000	-0.6	100	250	SOT-223
BCP56-16-AU	NPN	120	100	1000	0.5	100	250	
PBHV8110DW-AU	NPN	120	100	1000	0.45	100	300	
PBHV9110DW-AU	PNP	-120	-100	-1000	-0.6	100	300	
BCX53-16-AU	PNP	-120	-100	-1000	-0.6	100	250	SOT-89
BCX56-16-AU	NPN	120	100	1000	0.5	100	250	
PBHV8110DH-AU	NPN	120	100	1000	0.45	100	300	
PBHV9110DH-AU	PNP	-120	-100	-1000	-0.6	100	300	