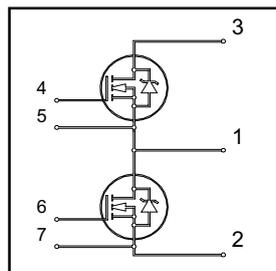


## Features

- Advanced Process Technology
- Ultra Low On-Resistance
- Dynamic dv/dt Rating
- 175 °C Operating Temperature
- Fast Switching
- Fully Avalanche Rated



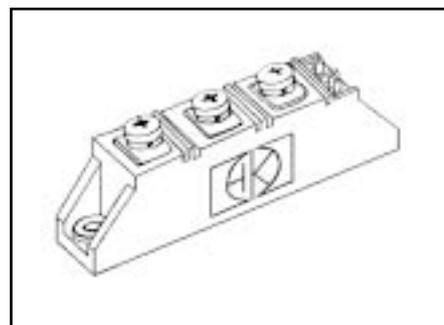
$$V_{DSS}=100V$$

$$R_{DS(on)}=0.009\Omega$$

$$I_D=170A$$

## Benefits

- Increased operating efficiency
- Direct mounting to heatsink
- Performance optimized for power conversion: UPS, SMPS, Welding, Mortor Control
- Lower EMI, requires less snubbing



## Absolute Maximum Ratings

	Parameter	Max.	Units
$I_D$ @ $T_c=25^\circ C$	Continuous Drain Current, $V_{GS}@10V$	170	A
$I_D$ @ $T_c=100^\circ C$	Continuous Drain Current, $V_{GS}@10V$	120	
$I_{DM}$	Pulsed Drain Current	670	
$P_D$ @ $T_c=25^\circ C$	Power Dissipation	580	W
	Linear Derating Factor	3.8	W/°C
$V_{GS}$	Gate- to- Source Voltage	$\pm 30$	V
$E_{AS}$	Single Pulse Avalanche Energy	1350	mJ
$I_{AR}$	Avalanche Current	100	A
$E_{AR}$	Repetitive Avalanche Energy	58	mJ
dv/dt	Peak Diode Recovery dv/dt	2.3	V/ns
$T_J$	Operating Junction Temperature Range	-55 to +175	°C
$T_{STG}$	Storage Temperature Range	-55 to +175	

## Thermal / Mechanical Characteristics

	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to- Case- IGBT	-	0.26	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction-to- Case- Diode	-	0.36	
$R_{\theta CS}$	Thermal Resistance, Case-to- Sink- Module	0.1	-	
	Mouting Torque, Case-to-Heatsink	-	4.0	N.m
	Mouting Torque, Case-to-Terminal 1,2 & 3	-	3.0	
	Weight of Module	100	-	g

# FP150TA10U



## Electrical Characteristics @ T<sub>J</sub>=25°C(unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
V <sub>(BR)DSS</sub>	Drain-to-Source Breakdown Voltage	100	—	—	V	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA
DV <sub>(BR)DSS/DTJ</sub>	Breakdown Voltage Temp. Coefficient	—	0.11	—	V/°C	Reference to 25°C, I <sub>D</sub> =250μA
R <sub>DS(on)</sub>	Static Drain-to-Source On-Resistance	—	—	0.009	Ω	V <sub>GS</sub> =10V, I <sub>D</sub> =100A
V <sub>GS(th)</sub>	Gate Threshold Voltage	3.0	—	5.0	V	V <sub>DS</sub> =10V, I <sub>D</sub> =250μA
g <sub>fe</sub>	Forward Transconductance	52	—	—	S	V <sub>DS</sub> =50V, I <sub>D</sub> =100A
I <sub>DSS</sub>	Drain-to-Source Leakage Current	—	—	25	μA	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V
		—	—	250		V <sub>DS</sub> =80V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C
I <sub>GSS</sub>	Drain-to-Source Forward Current	—	—	100	nA	V <sub>GS</sub> =30V
	Drain-to-Source Reverse Current	—	—	-100		V <sub>GS</sub> =-30V
Q <sub>g</sub>	Total Gate Charge	—	260	390	nC	I <sub>D</sub> =100A
Q <sub>gs</sub>	Gate-to-Source Charge	—	49	74		V <sub>DS</sub> =80V
Q <sub>gd</sub>	Gate-to-Drain (Miller) Charge	—	160	250		V <sub>GS</sub> =10V
t <sub>d(on)</sub>	Turn - On Delay Time	—	24	—	nS	V <sub>DD</sub> = 50V
t <sub>r</sub>	Rise Time	—	270	—		I <sub>D</sub> = 100A
t <sub>d(off)</sub>	Turn - Off Delay Time	—	45	—		R <sub>G</sub> =1.03Ω
t <sub>f</sub>	Fall Time	—	140	—		V <sub>GS</sub> = 10V
L <sub>D</sub>	Internal Drain Inductance	—	5.0	—	nH	Between lead,6mm from package and center of die
L <sub>S</sub>	Internal Source Inductance	—	13	—		
C <sub>iss</sub>	Input Capacitance	—	6790	—	pF	V <sub>GS</sub> = 0V
C <sub>oss</sub>	Output Capacitance	—	2470	—		V <sub>DS</sub> = 25V
C <sub>rss</sub>	Reverse Transfer Capacitance	—	990	—		f=1.0MHz
C <sub>oss</sub>	Output Capacitance	—	10740	—		V <sub>GS</sub> =0V, V <sub>DS</sub> =1.0V, f=1.0MHz
C <sub>oss</sub>	Output Capacitance	—	1180	—		V <sub>GS</sub> =0V, V <sub>DS</sub> =80V, f=1.0MHz
C <sub>oss eff.</sub>	Effective Output Capacitance	—	2210	—		V <sub>GS</sub> =0V, V <sub>DS</sub> =0V to 80V

## Dynamic Characteristics - T<sub>J</sub>=125°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
I <sub>S</sub>	Continuous Source Current (Body Diode)	—	—	174	A	MOSFET symbol showing the integral reverse p-n junction diode
I <sub>SM</sub>	Pulsed Source Current (Body Diode)	—	—	670		
V <sub>SD</sub>	Diode Forward Voltage	—	—	1.3	V	T <sub>J</sub> =25°C, I <sub>S</sub> =100A, V <sub>GS</sub> =0V
t <sub>rr</sub>	Diode Reverse Recovery Time	—	220	330	nS	T <sub>J</sub> =25°C, I <sub>F</sub> =100A
Q <sub>rr</sub>	Diode Reverse Recovery Charge	—	1640	2460	nC	di/dt=100A/μs
t <sub>on</sub>	Forward Turn-On Time	Intrinsic turn-on time is negligible (turn-on is dominated by L <sub>S</sub> +L <sub>D</sub> )				