

# MOSFET MODULE

# FBA50CA45/50

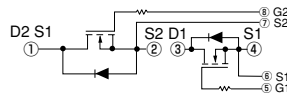
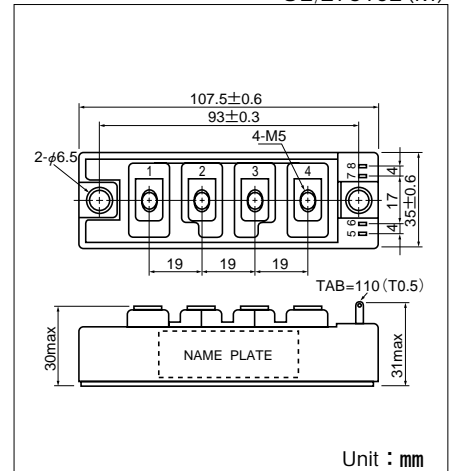
UL:E76102 (M)

**FBA50CA45/50** is a dual power MOSFET module designed for fast switching applications of high voltage and current. (2 devices are serial connected.) The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- $I_D=50A$ ,  $V_{DSS}=500V$
- Suitable for high speed switching applications.
- Low ON resistance.
- Wide Safe Operating Areas.

**(Applications)**

UPS (CVCF), Motor Control, Switching Power Supply, etc.



■ **Maximum Ratings**

( $T_j=25^{\circ}C$  unless otherwise specified)

Symbol	Item		Conditions	Ratings		Unit
				FBA50CA45	FBA50CA50	
$V_{DSS}$	Drain-Source Voltage			450	500	V
$V_{GSS}$	Gate-Source Voltage			$\pm 20$		V
$I_D$	Drain Current	D.C.		50		A
$I_{DP}$		Pulse		100		
$-I_D$	Source Current			50		A
$P_T$	Total Power Dissipation		$T_c=25^{\circ}C$	320		W
$T_j$	Channel Temperature			150		$^{\circ}C$
$T_{stg}$	Storage Temperature			-40 to +125		$^{\circ}C$
$V_{iso}$	Isolation Voltage (R.M.S.)		A.C. 1minute	2500		V
	Mounting Torque	Mounting (M6)	Recommended Value 2.5-3.9 (25-40)	4.7 (48)		N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5-2.5 (15-25)	2.7 (28)		
	Mass		Typical Value	220		g

■ **Electrical Characteristics**

( $T_j=25^{\circ}C$  unless otherwise specified)

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
$I_{GSS}$	Gate Leakage Current		$V_{GS}=\pm 20V$ , $V_{DS}=0V$			$\pm 1.0$	$\mu A$
$I_{DSS}$	Zero Gate Voltage Drain Current		$V_{GS}=0V$ , $V_{DS}=500V$			1.0	mA
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	<b>FBA50CA45</b>	$V_{GS}=0V$ , $I_D=1mA$	450			V
		<b>FBA50CA50</b>		500			
$V_{GS(th)}$	Gate-Source Threshold Voltage		$V_{DS}=V_{GS}$ , $I_D=10mA$	1.0		5.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance		$I_D=25A$ , $V_{GS}=15V$			120	m $\Omega$
$V_{DS(on)}$	Drain-Source On-State Voltage		$I_D=25A$ , $V_{GS}=15V$			3.0	V
$g_{fs}$	Forward Transconductance		$V_{DS}=10V$ , $I_D=25A$		30		S
$C_{iss}$	Input Capacitance		$V_{GS}=0V$ , $V_{DS}=25V$ , $f=1.0MHz$			10000	pF
$C_{oss}$	Output Capacitance		$V_{GS}=0V$ , $V_{DS}=25V$ , $f=1.0MHz$			1900	pF
$C_{rss}$	Reverse Transfer Capacitance		$V_{GS}=0V$ , $V_{DS}=25V$ , $f=1.0MHz$			750	pF
$t_d(on)$	Switching Time	Turn-on Delay Time	$R_L=12\Omega$ , $R_{GS}=50\Omega$ , $V_{GS}=15V$ $I_D=25A$ , $R_G=5\Omega$		60		ns
$t_r$		Rise Time			60		
$t_d(off)$		Turn-off Delay Time			650		
$t_f$		Fall Time			130		
$V_{SDS}$	Diode Forward Voltage		$-I_D=25A$ , $V_{GS}=0V$			1.5	V
$t_{rr}$	Reverse Recovery Time		$-I_D=25A$ , $V_{GS}=0V$ , $di/dt=100A/\mu s$		700		ns
$R_{th(j-c)}$	Thermal Resistance					0.39	$^{\circ}C/W$

