

MOSFET MODULE

FBA50CA45/50



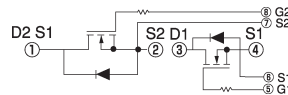
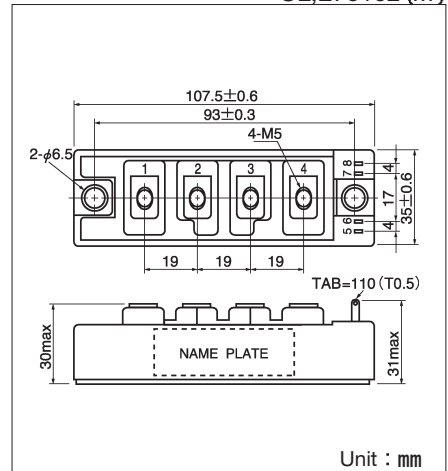
UL;E76102 (M)

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.

- $I_D = 50A$, $V_{DS} = 500V$
- Suitable for high speed switching applications.
- Low ON resistance.
- Wide Safe Operating Areas.
- $t_{rr} \leq 700ns$

(Applications)

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



Unit : mm

Maximum Ratings

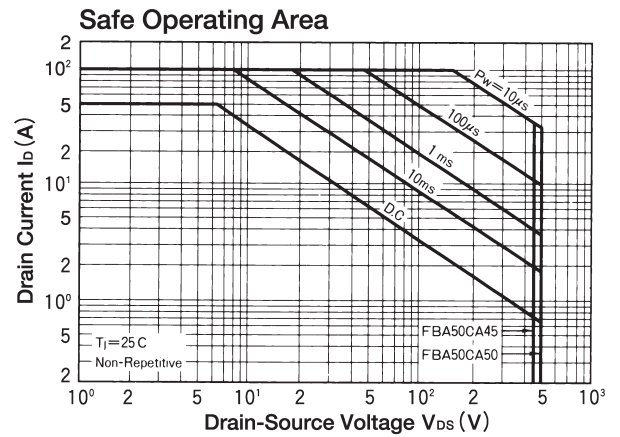
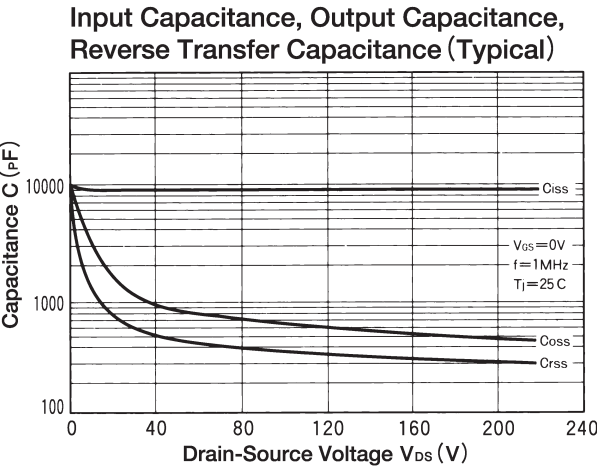
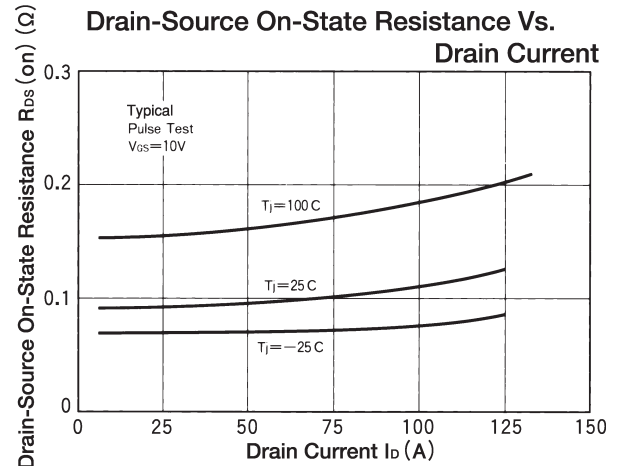
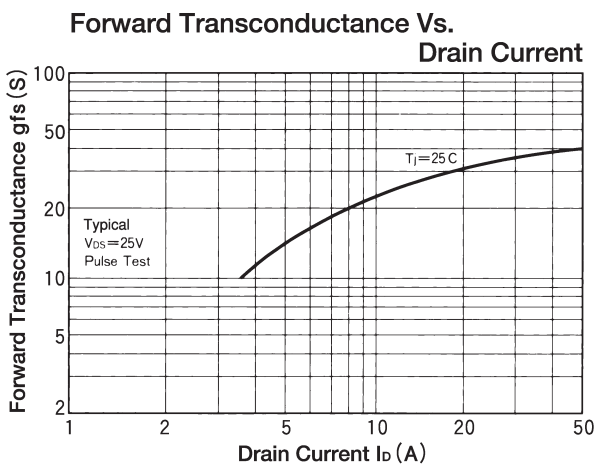
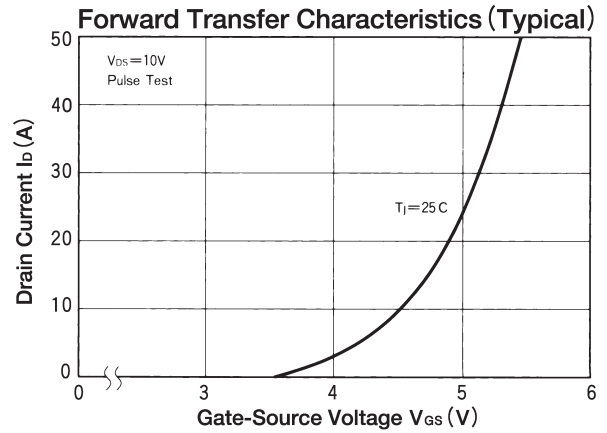
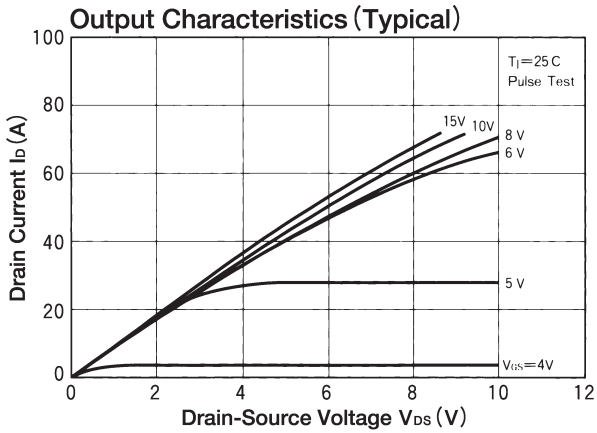
($T_j = 25^\circ C$)

Symbol	Item		Conditions	Ratings		Unit
				FBA50CA45	FBA50CA50	
V_{DS}	Drain-Source Voltage			450	500	V
V_{GS}	Gate-Source Voltage			± 20		V
I_D	Drain Current	D.C.	Duty = 25%	50		A
I_{DP}		Pulse		100		
$-I_D$	Reverse Drain 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			$-40 \sim +125$		$^\circ C$
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

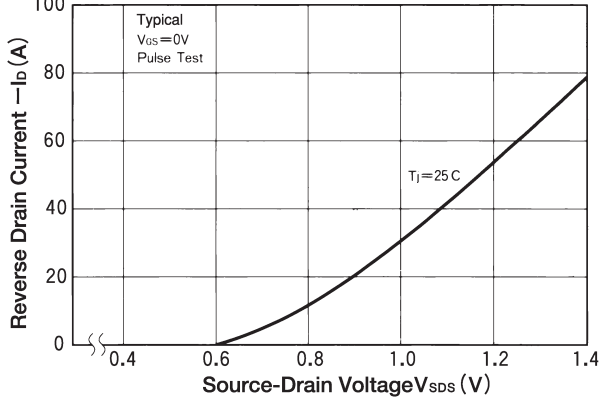
Electrical Characteristics

($T_j = 25^\circ C$)

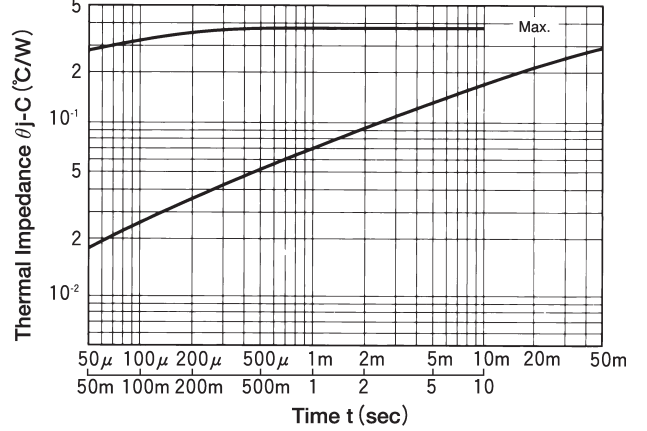
Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GSS}	Gate Leakage Current		$V_{GS} = \pm 20V$, $V_{DS} = 0V$			± 1.0	μA
I_{DSS}	Zero Gate Voltage Drain Current		$V_{GS} = 0V$, $V_{DS} = 500V$			1.0	mA
$V_{(BR)DS}$	Drain-Source Breakdown Voltage	FBA50CA45	$V_{GS} = 0V$, $I_D = 1mA$	450			V
		FBA50CA50		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 Ω
$V_{DS(on)}$	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	$^\circ C/W$



Forward Voltage of Free Wheeling Diode



Transient Thermal Impedance



Normalized Transient Thermal Impedance Vs. Pulse Width

