

MOSFET MODULE

FCA50BC50

UL : E76102 (M)

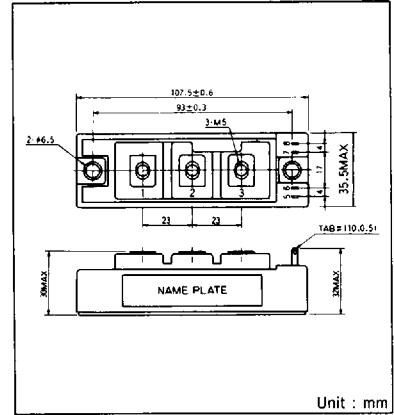
FCA50BC50 is a dual power MOSFET module designed for fast switching applications of high voltage and current. (2 devices are serial connected.) The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- $I_D = 50A$, $V_{DSS} = 500V$
- Suitable for high speed switching applications
- Low ON resistance.
- Wide Safe Operating Areas
- $t_{rr} \leq 100ns$

(Applications)

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

DISCONTINUED



Unit : mm

Tj = 25°C

Maximum Ratings

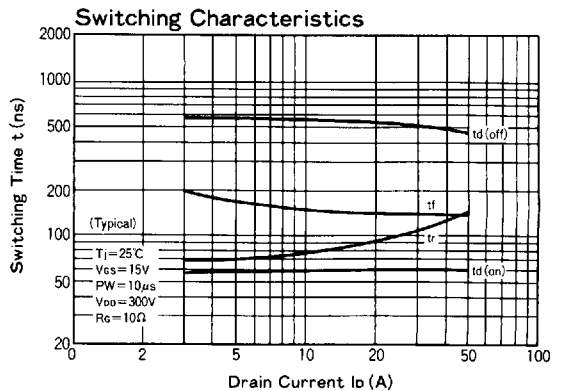
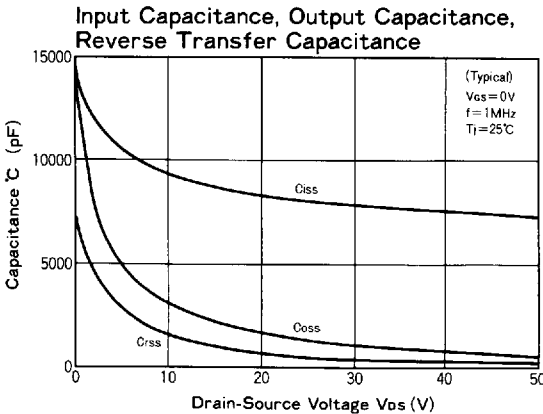
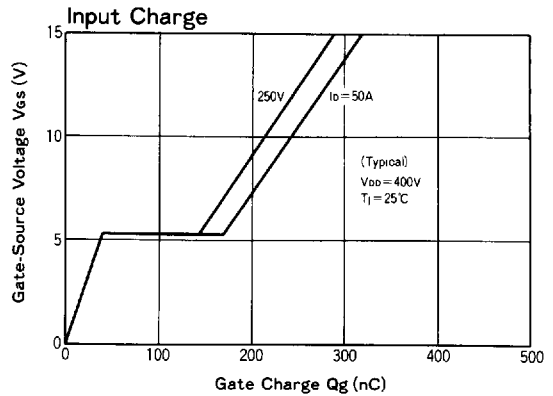
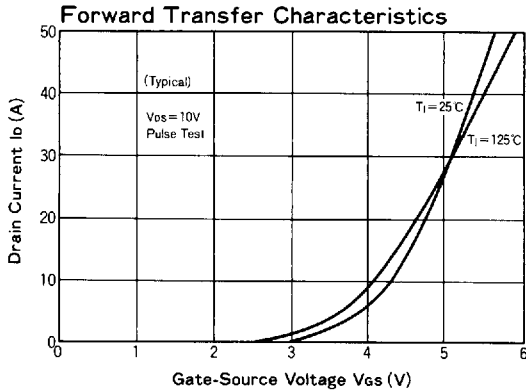
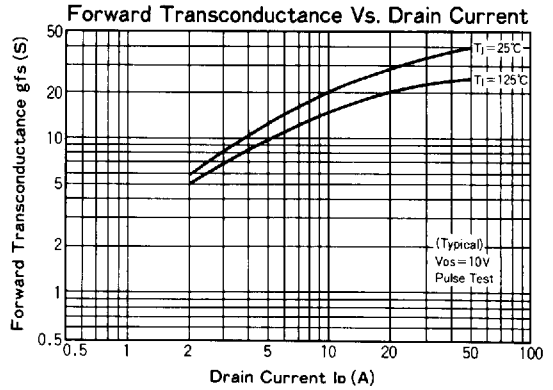
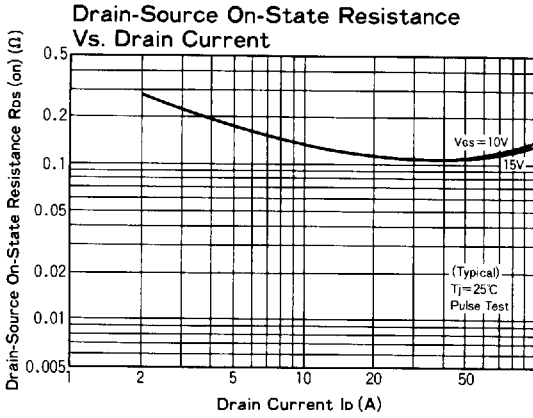
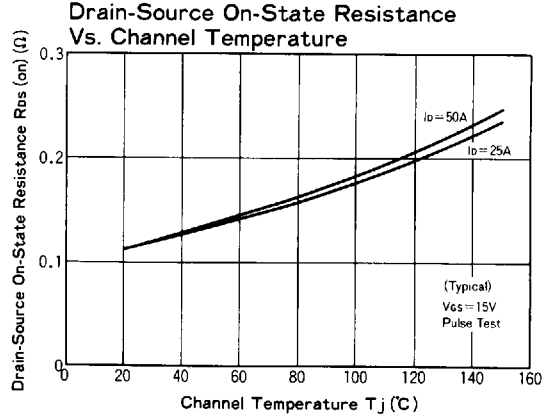
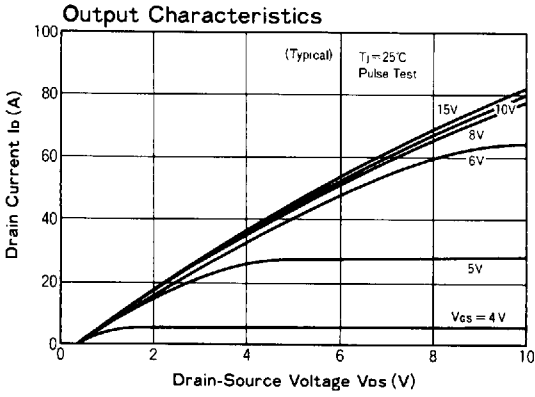
Symbol	Item		Conditions	Ratings		Unit
				FCA50BC50		
V_{DSS}	Drain-Source Voltage			500		V
V_{GSS}	Gate-Source Voltage			± 20		V
I_D	Drain Current	DC	Duty 55%	50		A
I_{DP}		Pulse		100		
$-I_D$	Reverse Drain Current			50		A
P_T	Total Power Dissipation		$T_c = 25^\circ C$	330		W
T_j	Channel Temperature			-40 ~ +150		°C
T_{stg}	Storage Temperature			-40 ~ +125		°C
V_{iso}	Isolation Voltage (R.M.S)		A.C. 1minute	2500		V
	Mounting Torque	(M6)	Recommended Value 20~40kgf·cm	50		kgf·cm
		Terminal (M5)	Recommended Value 15~24kgf·cm	30		
	Mass		Typical value	240		g

Electrical Characteristics

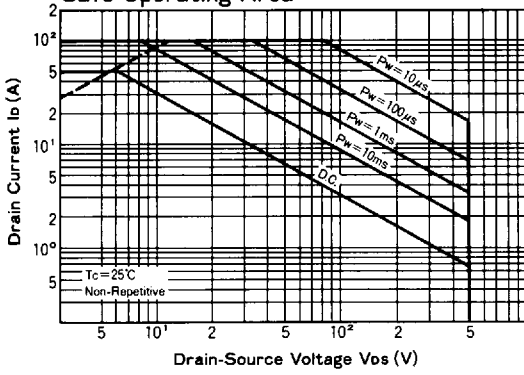
Tj = 25°C

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GSS}	Gate Leakage Current		$V_{GS} = \pm 20V$, $V_{DS} = 0V$			± 500	nA
I_{DSS}	Zero Gate Voltage Drain Current		$V_{GS} = 0V$, $V_{DS} = 500V$			1.0	mA
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		$V_{GS} = 0V$, $I_D = 1mA$	500			V
$V_{GS(th)}$	Gate-Source Threshold Voltage		$V_{DS} = V_{GS}$, $I_D = 10mA$	1.5		4.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance		$I_D = 25A$, $V_{GS} = 15V$		0.12	0.14	Ω
$V_{DS(on)}$	Drain-Source On-State Voltage		$I_D = 25A$, $V_{GS} = 15V$			3.5	V
g_{fs}	Forward Transconductance		$V_{DS} = 10V$, $I_D = 25A$		30		S
C_{iss}	Input Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			9000	pF
C_{oss}	Output Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			1800	pF
C_{rss}	Reverse Transfer Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			600	pF
$t_{d(on)}$	Switching Time	Turn-on Delay Time	$R_L = 12\Omega$, $R_{GS} = 50\Omega$, $V_{GS} = 15V$, $I_D = 25A$, $R_G = 10\Omega$		60		ns
t_r		Rise Time			100		
$t_{d(off)}$		Turn-off Delay Time			520		
t_f		Fall Time			140		
V_{SDS}	Source-Drain Voltage		$-I_D = 25A$, $V_{GS} = 0V$			2.0	V
t_{rr}	Reverse Recovery Time		$-I_D = 25A$, $V_{GS} = 0V$, $dI_D/dt = 100A/\mu s$		80	100	ns
$R_{th(j-c)}$	Thermal Resistance		MOSFET			0.38	°C/W
			DIODE			1.67	

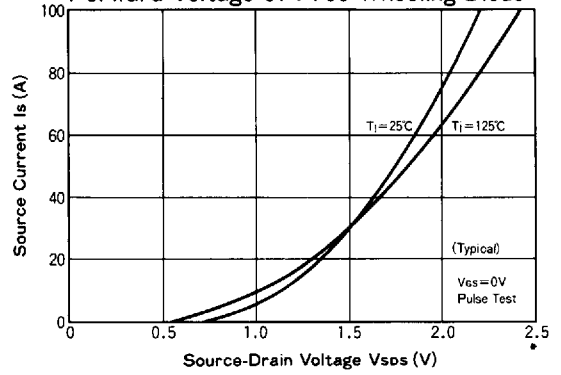
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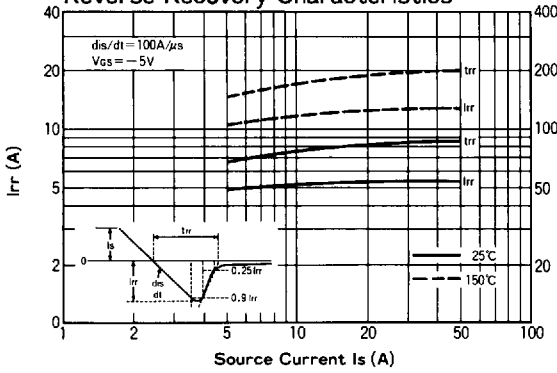
Safe Operating Area



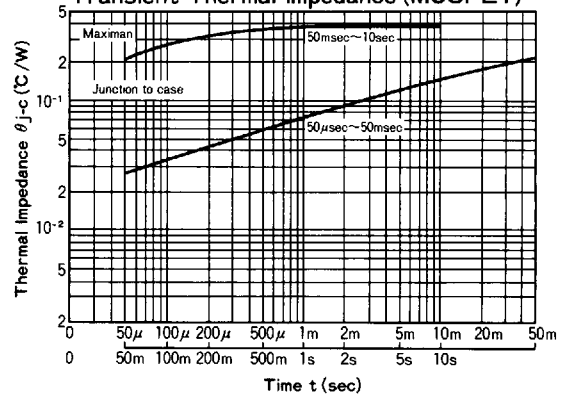
Forward Voltage of Free Wheeling Diode



Reverse Recovery Characteristics



Transient Thermal Impedance (MOSFET)



Transient Thermal Impedance (DIODE)

