

FCA50BC50

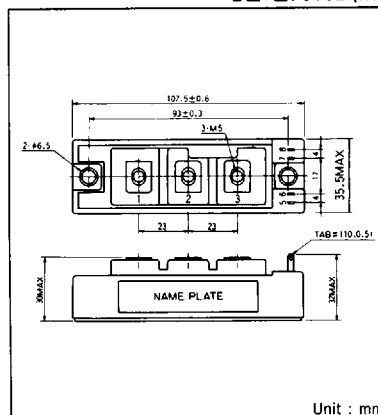
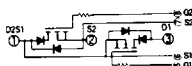
UL;E76102(M)

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.

- $I_D = 50A$, $V_{DS} = 500V$
- 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.



Unit : mm

 $T_j = 25^\circ\text{C}$

■ 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 _{OP}		Pulse		100	
− I _D	Reverse Drain Current			50	A
P _T	Total Power Dissipation		T _c = 25°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. 1 minute	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

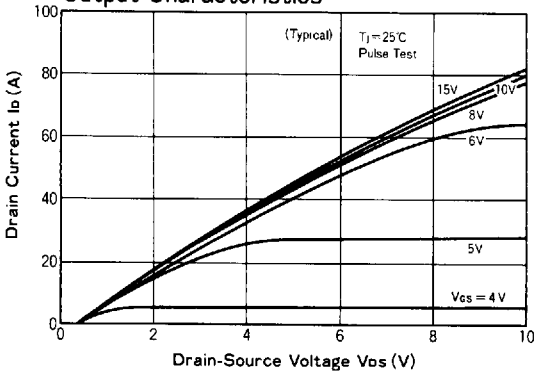
■ Electrical Characteristics

 $T_i = 25^\circ\text{C}$

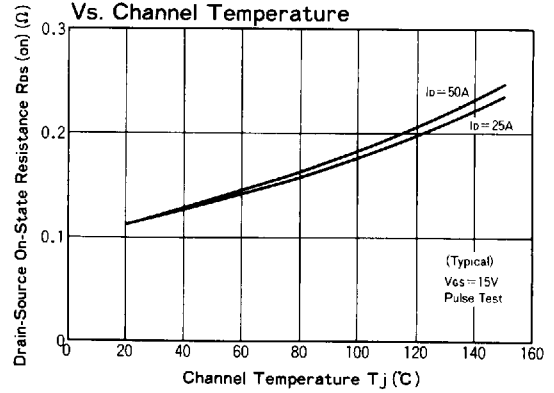
Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GSS}	Gate Leakage Current		$V_{GS} = \pm 20V, V_{DS} = 0V$			± 500	nA
I_{DSS}	Zero Gate Voltage Drain Current		$V_{GS} = 0V, V_{DS} = 500V$			1.0	mA
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		$V_{GS} = 0V, I_D = 1mA$	500			V
$V_{GS(th)}$	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	$^{\circ}C/W$
			DIODE			1.67	

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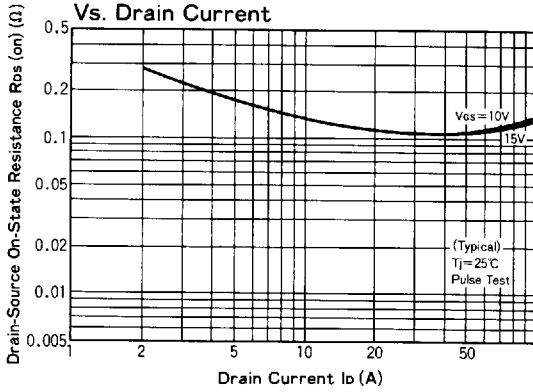
Output Characteristics



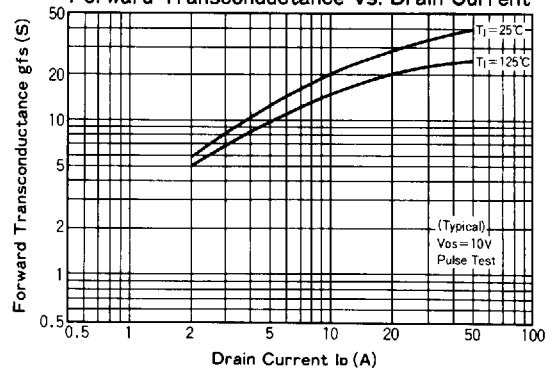
Drain-Source On-State Resistance Vs. Channel Temperature



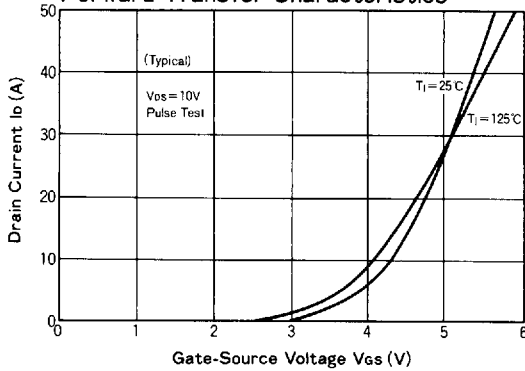
Drain-Source On-State Resistance Vs. Drain Current



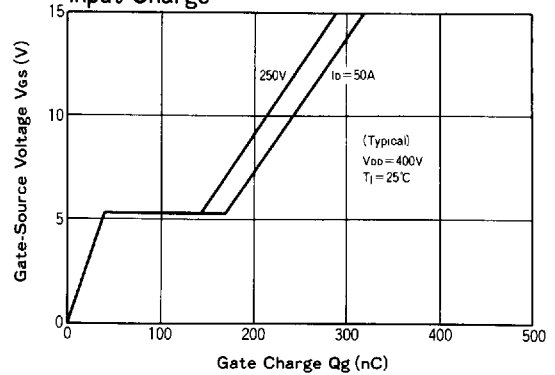
Forward Transconductance Vs. Drain Current



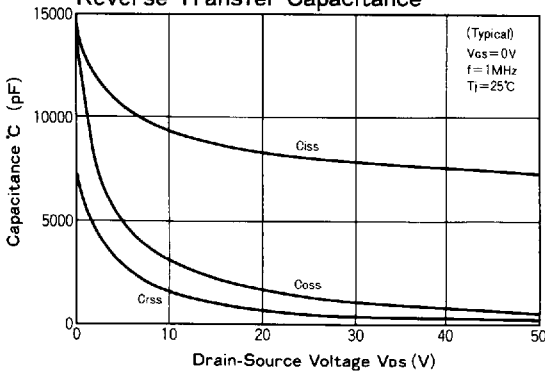
Forward Transfer Characteristics



Input Charge



Input Capacitance, Output Capacitance, Reverse Transfer Capacitance



Switching Characteristics

