

MOSFET MODULE

FCA75CC50

TOP



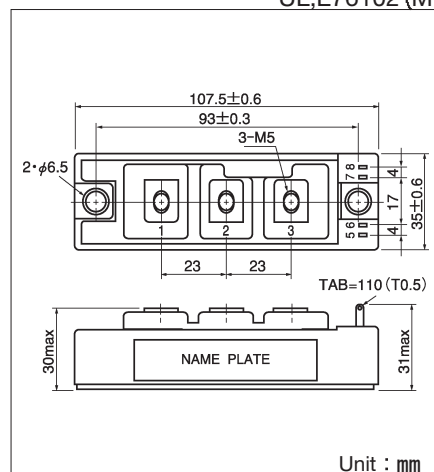
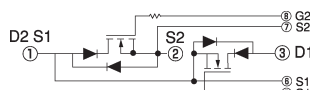
UL;E76102 (M)

FCA75CC50 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.

- $I_D = 75A$, $V_{DS} = 500V$
- 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

Maximum Ratings

($T_j = 25^\circ C$)

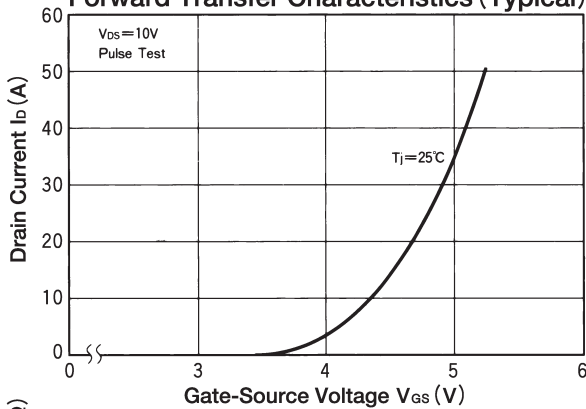
Symbol	Item		Conditions	Ratings	Unit
				FCA75CC50	
V_{DS}	Drain-Source Voltage			500	V
V_{GS}	Gate-Source Voltage			± 20	V
I_D	Drain Current	DC	Duty 35%	75	A
I_{DP}		Pulse		150	
I_S	Source Current			75	A
P_T	Total Power Dissipation		$T_c = 25^\circ C$	430	W
T_j	Channel Temperature			$-40 \sim +150$	$^\circ C$
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	240	g

Electrical Characteristics

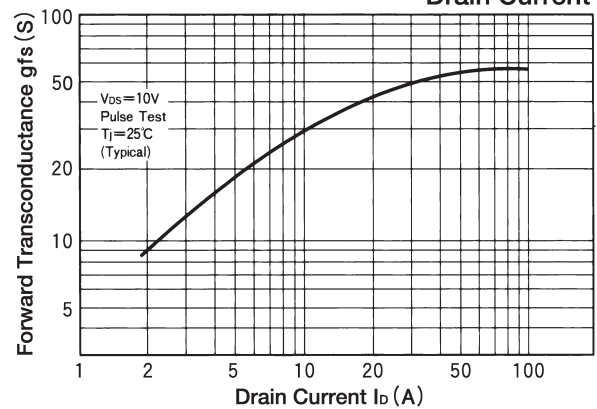
($T_j = 25^\circ C$)

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		$V_{GS} = 0V$, $I_D = 1mA$	500			V
$V_{GS(th)}$	Gate-Source Threshold Voltage		$V_{DS} = V_{GS}$, $I_D = 10mA$	1.0		5.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance		$I_D = 40A$, $V_{GS} = 15V$			140	m Ω
$V_{DS(on)}$	Drain-Source On-State Voltage		$I_D = 40A$, $V_{GS} = 15V$			3.5	V
g_{fs}	Forward Transconductance		$V_{DS} = 10V$, $I_D = 40A$		40		S
C_{iss}	Input Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			13500	pF
C_{oss}	Output Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			2500	pF
C_{rss}	Reverse Transfer Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			1000	pF
$t_{d(on)}$	Switching Time	Turn-on Delay Time	$V_{DD} = 300V$, $V_{GS} = 15V$ $I_D = 40A$, $R_G = 5\Omega$		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		$I_S = 40A$, $V_{GS} = 0V$			2.5	V
t_{rr}	Reverse Recovery Time		$I_S = 40A$, $V_{GS} = -5V$, $di/dt = 100A/\mu s$		80	100	ns
$R_{th(j-c)}$	Thermal Resistance		MOSFET			0.29	$^\circ C/W$
			Diode			1.67	

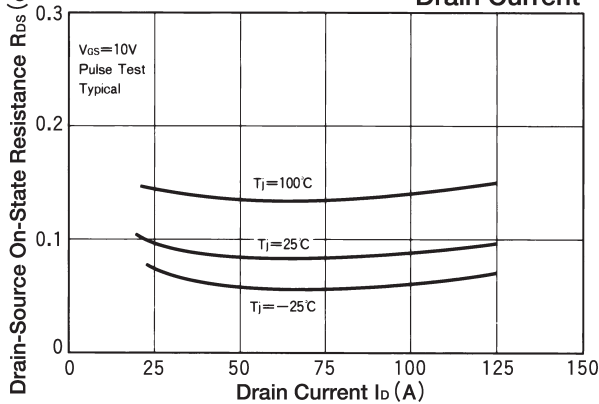
Forward Transfer Characteristics (Typical)



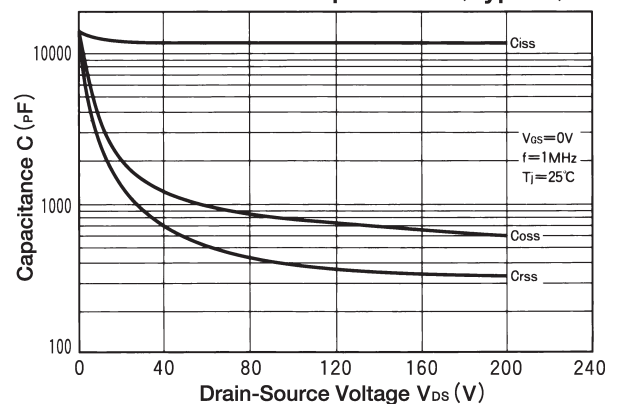
Forward Transconductance Vs. Drain Current



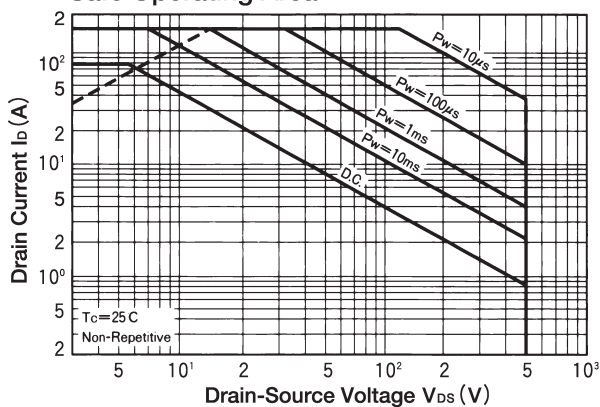
Drain-Source On-State Resistance Vs. Drain Current



Input Capacitance, Output Capacitance, Reverse Transfer Capacitance (Typical)



Safe Operating Area



Forward Voltage of Free Wheeling Diode

