

MOSFET MODULE

FCA75CC50



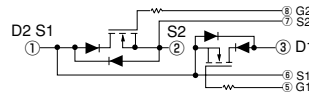
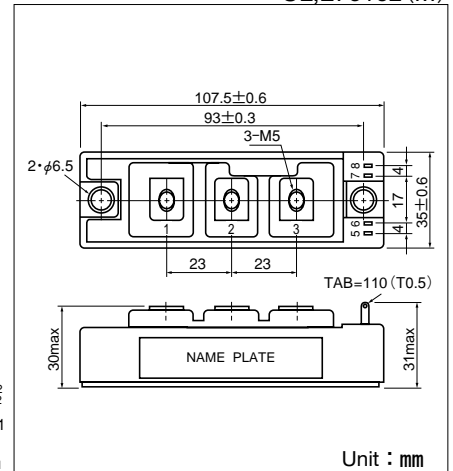
UL;E76102 (M)

FCA75CC50 is a dual power MOSFET module designed for fast switching applications of high voltage and current. (2 devices are serial connected with a fast recovery diode ($t_{rr} \leq 100\text{ns}$) reverse connected across each MOSFET.) The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- $I_D = 75\text{A}$, $V_{DSS} = 500\text{V}$
- Suitable for high speed switching applications.
- Low ON resistance.
- Wide Safe Operating Areas.
- $t_{rr} \leq 100\text{ns}$ fast recovery diode for free wheel.

(Applications)

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



Maximum Ratings

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

Symbol	Item		Conditions	Ratings		Unit
				FCA75CC50		
V_{DSS}	Drain-Source Voltage			500		V
V_{GSS}	Gate-Source Voltage			± 20		V
I_D	Drain Current	DC	Duty 35%	75		A
I_{DP}		Pulse		150		
$-I_D$	Source Current			75		A
P_T	Total Power Dissipation		$T_c = 25^\circ\text{C}$	430		W
T_j	Channel Temperature			-40 to +150		$^\circ\text{C}$
T_{stg}	Storage Temperature			-40 to +125		$^\circ\text{C}$
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

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

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GSS}	Gate Leakage Current		$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$			± 1.0	μA
I_{DSS}	Zero Gate Voltage Drain Current		$V_{GS} = 0\text{V}$, $V_{DS} = 500\text{V}$			1.0	mA
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		$V_{GS} = 0\text{V}$, $I_D = 1\text{mA}$	500			V
$V_{GS(th)}$	Gate-Source Threshold Voltage		$V_{DS} = V_{GS}$, $I_D = 10\text{mA}$	1.0		5.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance		$I_D = 40\text{A}$, $V_{GS} = 15\text{V}$			110	m Ω
$V_{DS(on)}$	Drain-Source On-State Voltage		$I_D = 40\text{A}$, $V_{GS} = 15\text{V}$			4.4	V
g_{fs}	Forward Transconductance		$V_{DS} = 10\text{V}$, $I_D = 40\text{A}$		40		S
C_{iss}	Input Capacitance		$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1.0\text{MHz}$			13500	pF
C_{oss}	Output Capacitance		$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1.0\text{MHz}$			2500	pF
C_{rss}	Reverse Transfer Capacitance		$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1.0\text{MHz}$			1000	pF
$t_{d(on)}$	Switching Time	Turn-on Delay Time	$V_{DD} = 300\text{V}$, $V_{GS} = 15\text{V}$ $I_D = 40\text{A}$, $R_G = 5\Omega$		70		ns
t_r		Rise Time			140		
$t_{d(off)}$		Turn-off Delay Time			700		
t_f		Fall Time			210		
V_{SDS}	Diode Forward Voltage		$-I_S = 40\text{A}$, $V_{GS} = 0\text{V}$			2.5	V
t_{rr}	Reverse Recovery Time		$-I_S = 40\text{A}$, $V_{GS} = -5\text{V}$, $di/dt = 100\text{A}/\mu\text{s}$		80	100	ns
$R_{th(j-c)}$	Thermal Resistance		MOSFET			0.29	$^\circ\text{C}/\text{W}$
			Diode			1.67	