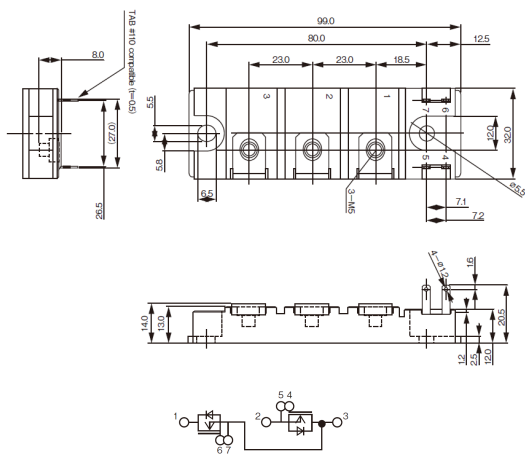


FCA150AC120

- 2in1 SiC MOSFET module
- Isolated module
- Integrated FWD function

- Small size package
- High reliability
- Safe gate driving
- Short circuit tolerance
- Low power loss
- Low temperature dependency of $R_{DS(on)}$
- Unnecessity of additional FWD

- Industrial inverters / DC-DC converters / EV chargers / Resonant power supply



CIRCUIT DIAGRAM

Unit : mm—

■ **Maximum Ratings** (T_j=25°C unless otherwise specified)

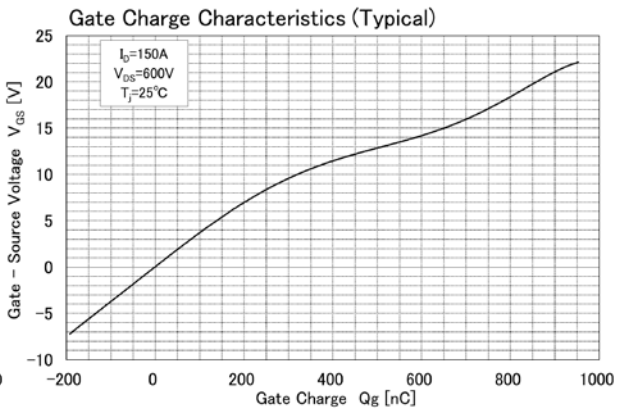
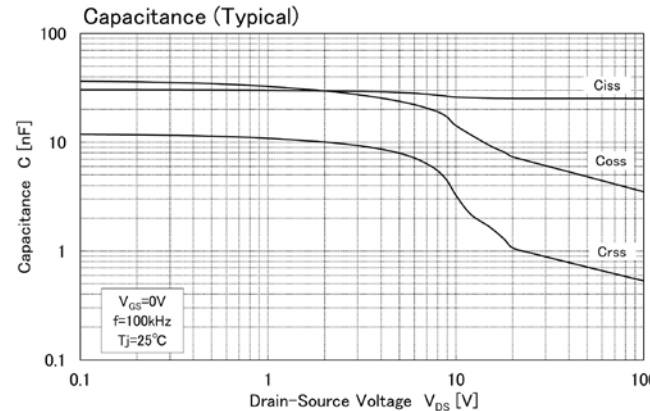
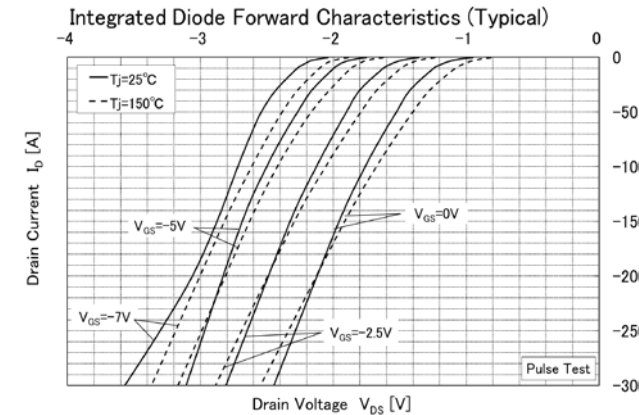
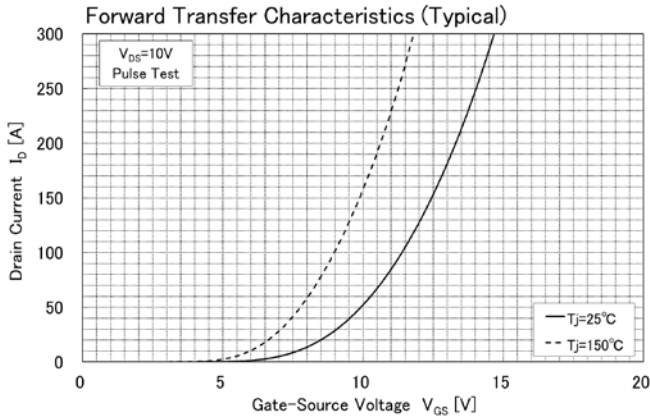
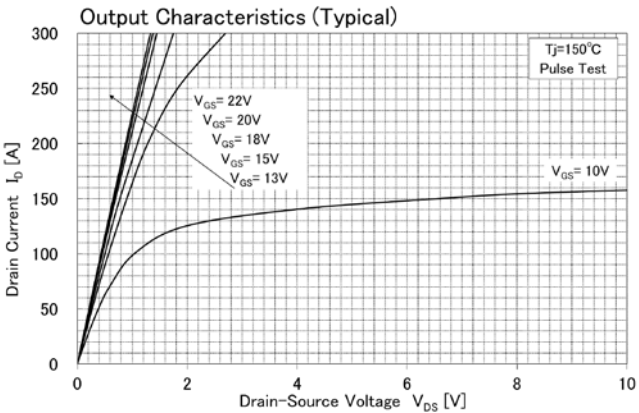
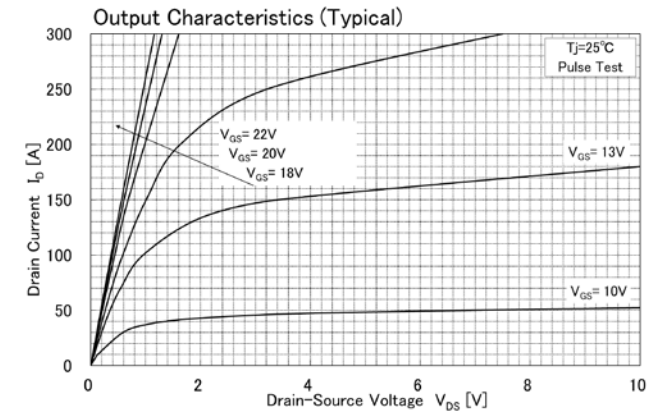
Item		Symbol	Unit	Rated Values	Conditions
Drain-Source Voltage		V_{DSS}	V	1200	
Gate-Source Voltage(+)		V_{GSS}	V	22	
Gate-Source Voltage(-)			V	-7	
Continuous Drain Current		I_D	A	150	$V_{GS}=20V, T_c=90^{\circ}C$
Continuous Source Current		I_S	A	150	$V_{GS}=-5V, T_c=90^{\circ}C$
Total Power Dissipation		P_{tot}	W	1135	$T_c=25^{\circ}C$
Operating Junction Temperature		T_j	$^{\circ}C$	-40 to +150	
Storage Temperature		T_{stg}	$^{\circ}C$	-40 to +125	
Isolation Voltage (RMS)		V_{iso}	V	2500	AC 60Hz 1 minute
Mounting torque	Mounting M5		N·m	2.7	Recommended Value 1.5 to 2.5
	Terminal M5			2.7	Recommended Value 1.5 to 2.5
Mass		-	g	130	Typical value

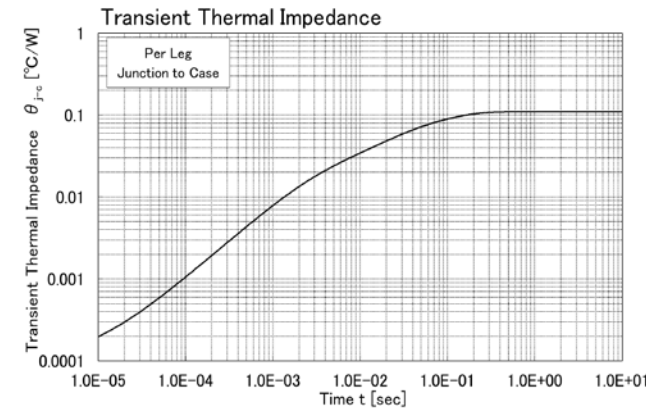
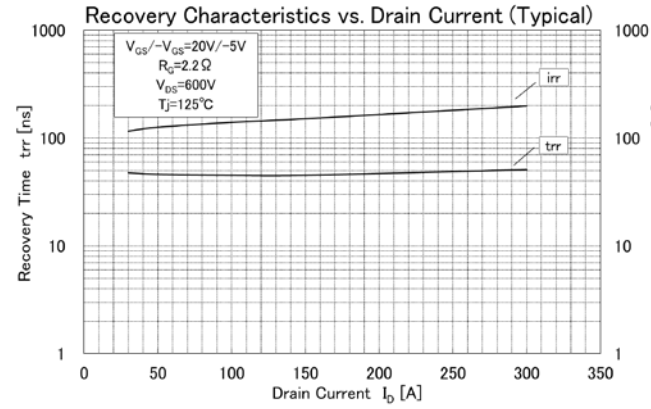
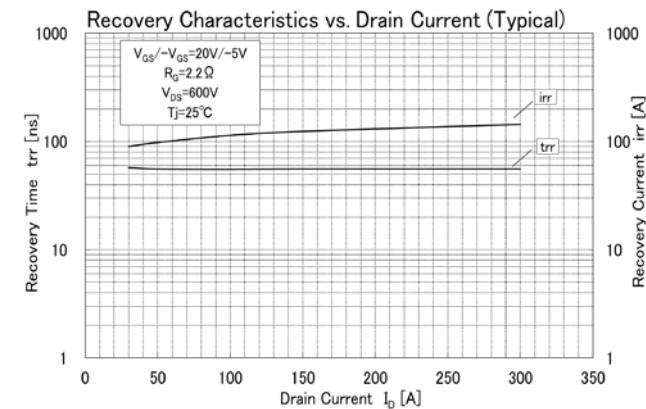
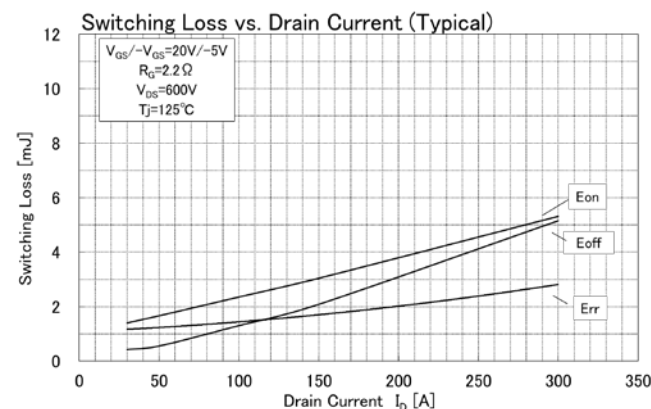
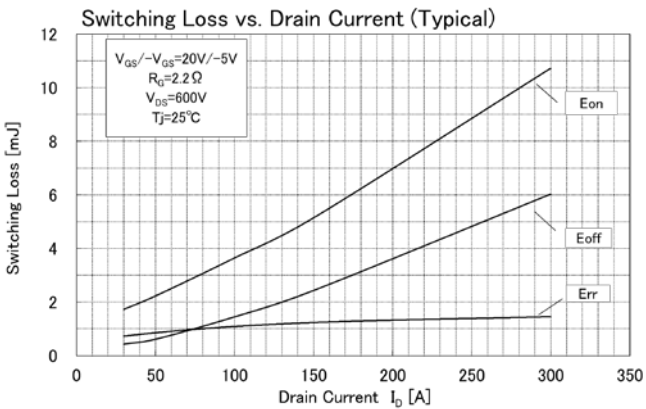
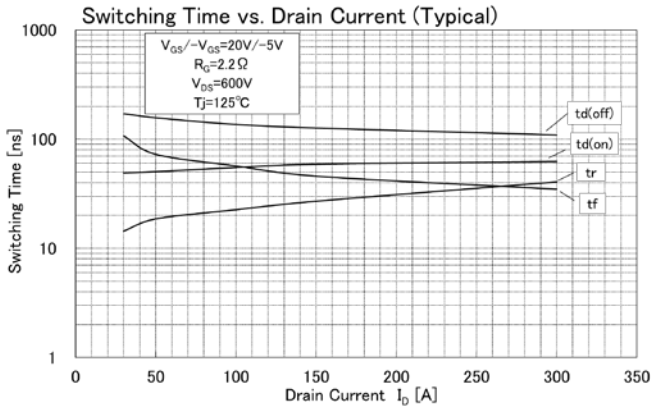
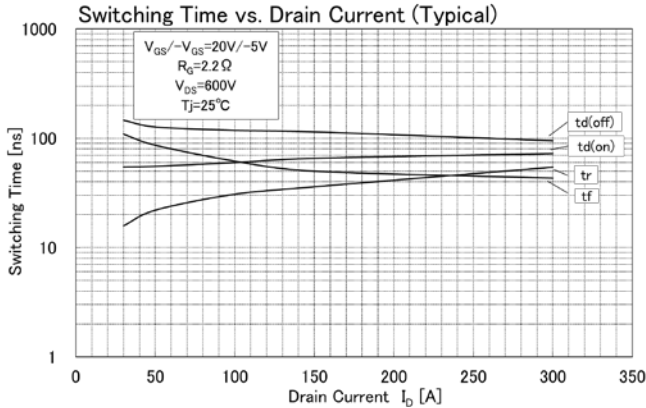
■ Electrical Characteristics (T_J=25°C unless otherwise specified)

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V	1200			$V_{GS}=0V, I_D=300\mu A$
Static Drain-Source On-State Voltage	$V_{DS(on)}$	V		0.61	1.40	$V_{GS}=20V, I_D=150A$
				0.67	1.50	$V_{GS}=20V, I_D=150A, T_J=150^{\circ}C$
On-State Resistance	$R_{DS(on)}$	$m\Omega$		4.1	9.3	$V_{GS}=20V, I_D=150A$
				4.5	10.0	$V_{GS}=20V, I_D=150A, T_J=150^{\circ}C$
Drain Cutoff Current	I_{DSS}	μA			300	$V_{DS}=1200V, V_{GS}=0V$
Gate-Source Threshold Voltage	$V_{GS(th)}$	V	3	4	5	$V_{DS}=10V, I_D=4.5mA$
Gate-Source Leakage Current	I_{GSS}	nA			300	$V_{GS}=20V, V_{DS}=0V$
Switching Characteristics	$t_{d(on)}$	ns		66		$I_D=150A, V_{DS}=600V, V_{GS}=+20V/-5V,$ $R_G=2.2\Omega, L=126\mu H$
	t_r	ns		36		
	$t_{d(off)}$	ns		114		
	t_f	ns		50		
Input Capacitance	C_{iss}	nF		25.3		$V_{DS}=20V, V_{GS}=0V, f=100kHz$
Output Capacitance	C_{oss}	nF		7.4		
Reverse Transfer Capacitance	C_{rss}	nF		1.1		
Source-Drain Voltage	V_{SD}	V		2.68	2.90	$V_{GS}=-5V, I_S=150A$
				2.63	2.95	$V_{GS}=-5V, I_S=150A, T_J=150^{\circ}C$
Diode Total Capacitive Charge	Q_c	nC		4000		$I_{SD}=150A, V_{DS}=600V, di_{SD}/dt=3200A/\mu s, V_{GS}=-5V$

■ Thermal Characteristics (Tj=25°C unless otherwise specified)

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Thermal Resistance	$R_{th(j-c)}$	°C/W			0.11	Junction to case (Per Leg)
Interface Thermal Resistance	$R_{th(c-f)}$	°C/W		0.06		Case to Heat sink (Per Module) Thermal conductivity (Silicone grease) $= 9 \times 10^{-3} [W/cm \cdot ^\circ C]$





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