

FCA100AC120

- 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



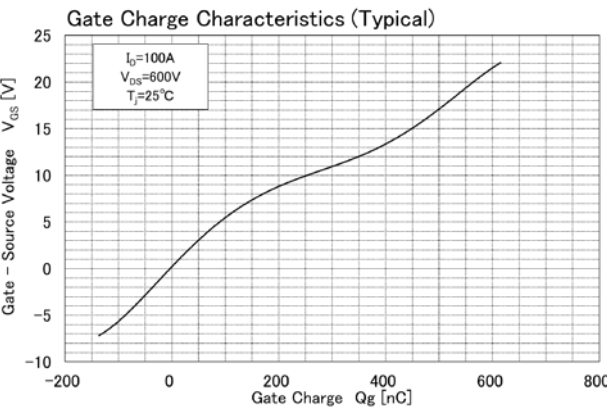
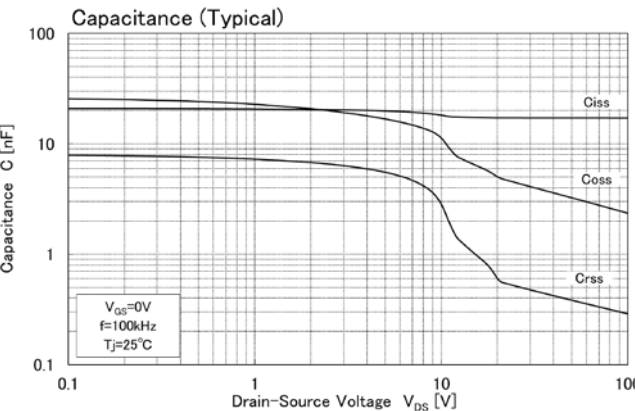
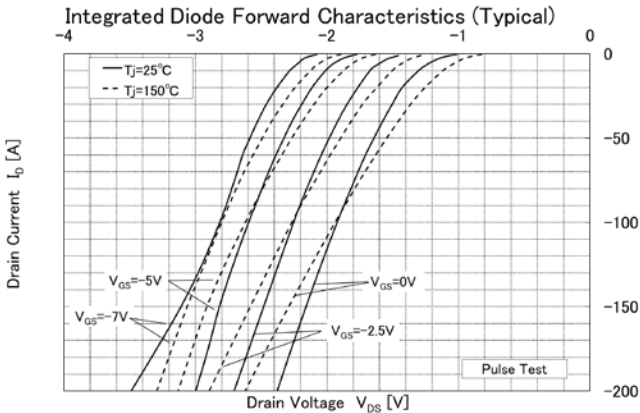
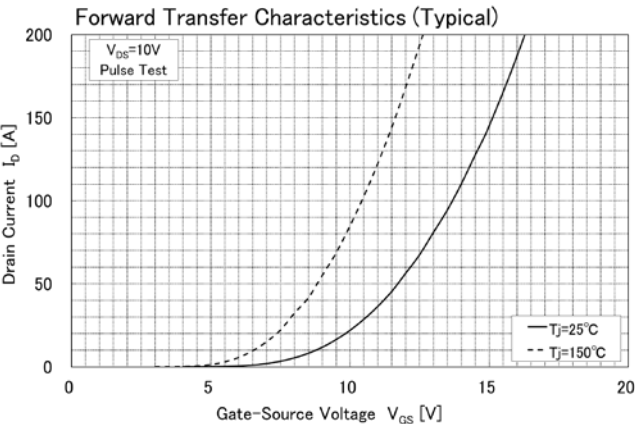
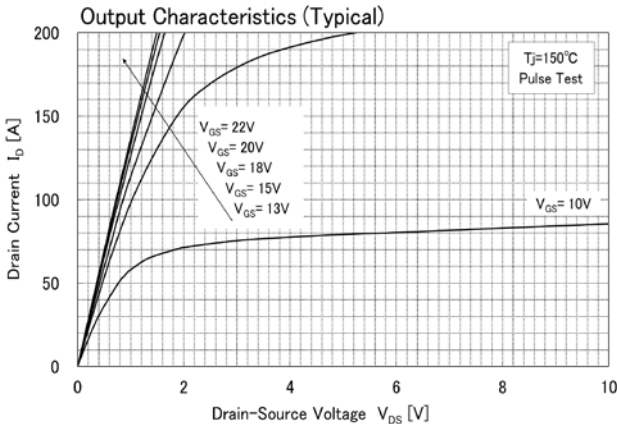
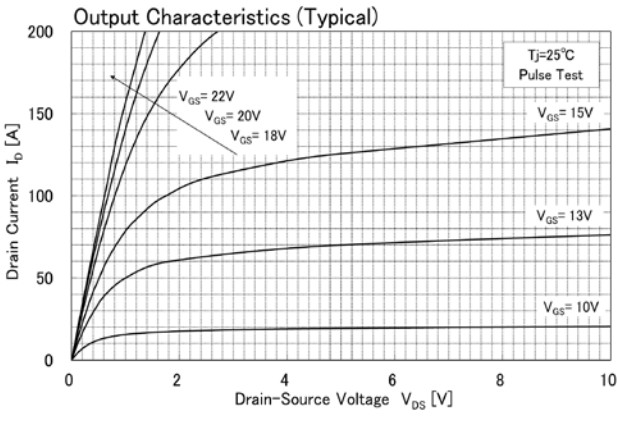
Unit : mm—

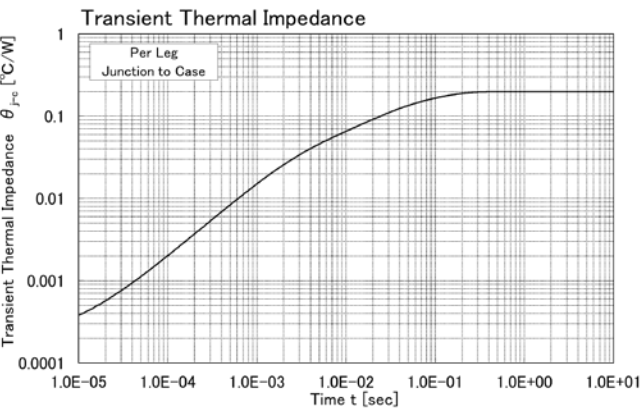
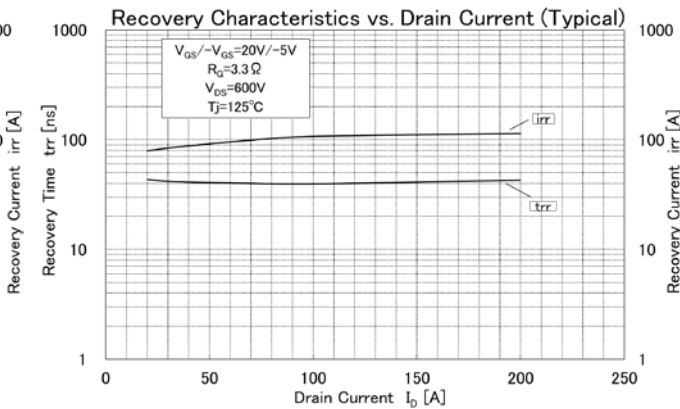
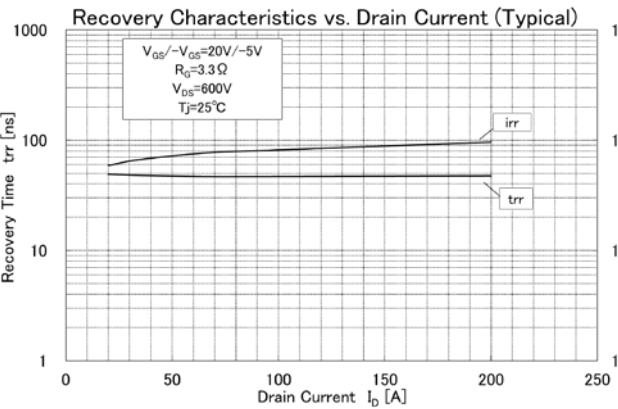
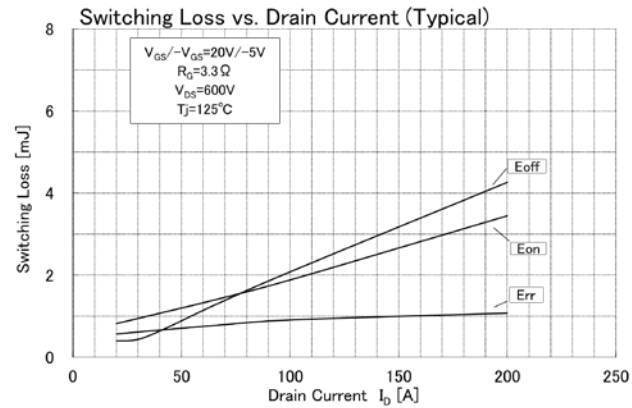
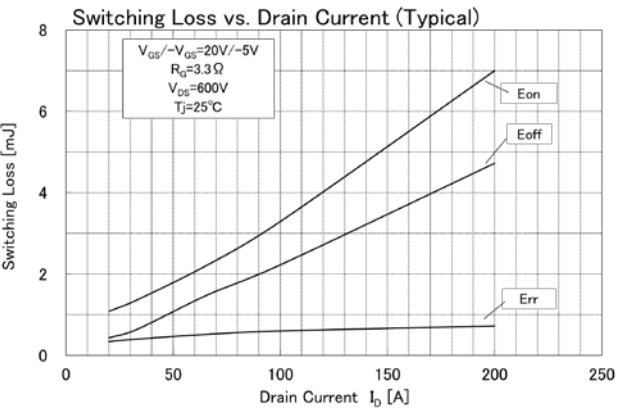
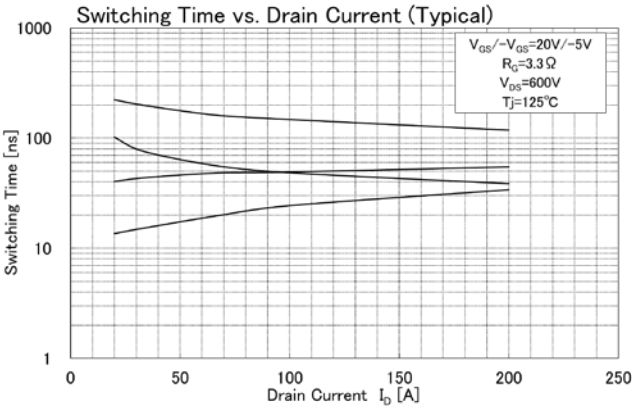
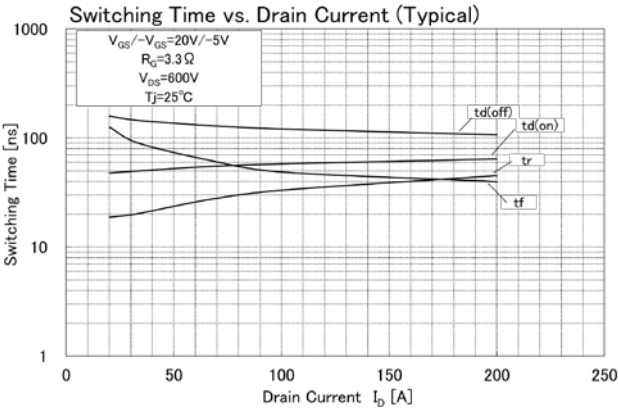
Item		Symbol	Unit	Rated Values	Conditions
Drain-Source Voltage		V_{DSS}	V	1200	
Gate-Source Voltage(+)		V_{GSS}	V	22	
Gate-Source Voltage(-)			V	-7	
Continuous Drain Current		I_D	A	100	$V_{GS}=20V, T_c=100^{\circ}C$
Continuous Source Current		I_S	A	100	$V_{GS}=5V, T_c=100^{\circ}C$
Total Power Dissipation		P_{tot}	W	780	$T_c=25^{\circ}C$
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 1minute
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

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V	1200			$V_{GS}=0V, I_D=200\mu A$
Static Drain-Source On-State Voltage	$V_{DS(on)}$	V		0.68	1.40	$V_{GS}=20V, I_D=100A$
				0.74	1.50	$V_{GS}=20V, I_D=100A, T_J=150^{\circ}C$
On-State Resistance	$R_{DS(on)}$	$m\Omega$		6.8	14.0	$V_{GS}=20V, I_D=100A$
				7.4	15.0	$V_{GS}=20V, I_D=100A, T_J=150^{\circ}C$
Drain Cutoff Current	I_{DSS}	μA			200	$V_{DS}=1200V, V_{GS}=0V$
Gate-Source Threshold Voltage	$V_{GS(th)}$	V	3	4	5	$V_{DS}=10V, I_D=3mA$
Gate-Source Leakage Current	I_{GSS}	nA			200	$V_{GS}=20V, V_{DS}=0V$
Switching Characteristics	$t_{d(on)}$	ns		58		$I_D=100A, V_{DS}=600V, V_{GS}=+20V/-5V,$ $R_G=3.3\Omega, L=126\mu H$
	t_r	ns		33		
	$t_{d(off)}$	ns		121		
	t_f	ns		49		
Input Capacitance	C_{iss}	nF		17.2		$V_{DS}=20V, V_{GS}=0V, f=100kHz$
Output Capacitance	C_{oss}	nF		5.0		
Reverse Transfer Capacitance	C_{rss}	nF		0.6		
Source-Drain Voltage	V_{SD}	V		2.60	2.90	$V_{GS}=-5V, I_S=100A$
				2.62	2.95	$V_{GS}=-5V, I_S=100A, T_J=150^{\circ}C$
Diode Total Capacitive Charge	Q_c	nC		2300		$I_{SD}=100A, V_{DS}=600V, di_{SD}/dt=2400A/\mu s, V_{GS}=-5V$

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

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Thermal Resistance	$R_{th(j-c)}$	°C/W			0.16	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) = 9×10^{-3} [W/cm·°C]





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