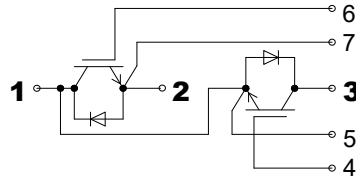


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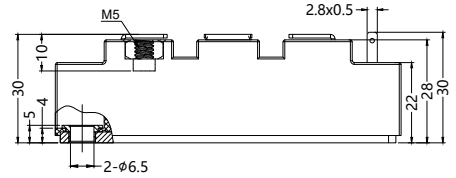
IGBT Modules



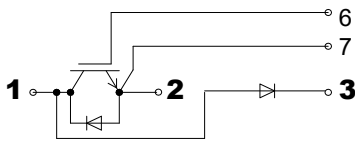
SGG100T120UC1



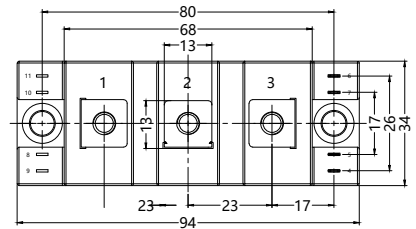
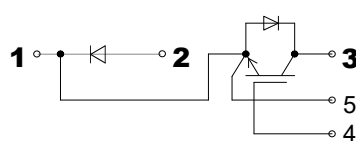
Dimensions in mm (1mm = 0.0394")



SGD100T120UC1



SDG100T120UC1



$T_C=25^{\circ}\text{C}$, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	$T_C=25(80)^{\circ}\text{C}$	160(123)	A
I_{CRM}	$T_C=25^{\circ}\text{C}, t_p=1\text{ms}$	300	A
V_{GES}		± 20	V
T_{Vj}		$-40 \dots +175$	$^{\circ}\text{C}$
Inverse Diode			
$I_F = -I_C$	$T_C=25(80)^{\circ}\text{C}$	125(100)	A
I_{FRM}	$T_C=25^{\circ}\text{C}, t_p=1\text{ms}$	300	A
I_{FSM}	$t_p=10\text{ms}; \sin.; T_j=150^{\circ}\text{C}$	550	A
Module			
$I_{t(RMS)}$	$T_{terminal}=80^{\circ}\text{C}$	200	A
T_{stg}		$-40 \sim 125$	$^{\circ}\text{C}$
V_{Isol}	AC, 1min	4000	V

Features

- Trench Field Stop IGBT4 technology
- Low switching losses
- Switching frequency up to 20kHz
- Square RBSOA, no latch up
- High short circuit capability
- Positive temperature coefficient for easy paralleling
- MOS input, voltage controlled
- Soft switching FRD diode Technology
- Package with copper base plate
- Isolation voltage 4000 V

Application

- AC and DC motor control
- AC servo and robot drives
- Power supplies
- Welding inverters

Advantages

- Space and weight savings
- Reduced protection circuits



Sirectifier®

SGG100T120UC1

IGBT Modules

Characteristics

$T_C=25^{\circ}\text{C}$, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=6\text{mA}$	5.0	5.8	6.5	V
I_{CES}	$V_{GE}=0; V_{CE}=V_{CES}; T_J=25^{\circ}\text{C}$			1.0	mA
$V_{CE(TO)}$	$T_J=25^{\circ}\text{C}$		0.8	0.9	V
r_{CE}	$V_{GE}=15\text{V}, T_J=25(150)^{\circ}\text{C}$		10.0(15.0)	11.5(16.0)	m Ω
$V_{CE(sat)}$	$I_C=100\text{A}; V_{GE}=15\text{V}; \text{chip level}$		1.80	2.05	V
C_{ies}	under following conditions $V_{GE}=0, V_{CE}=25\text{V}, f=1\text{MHz}$		6.15		nF
C_{oes}			0.40		
C_{res}			0.345		
L_{CE}				30	nH
$R_{CC'+EE'}$	res., terminal-chip $T_C=25(125)^{\circ}\text{C}$		0.65(1.0)		m Ω
$t_{d(on)}$	under following conditions: $V_{CC}=600\text{V}, I_C=100\text{A}$ $R_{Gon}=R_{Goff}=1\Omega,$ $T_J=150^{\circ}\text{C}, V_{GE}=\pm 15\text{V}$		165		ns
t_r			47		ns
$t_{d(off)}$			400		ns
t_f			75		ns
$E_{on}(E_{off})$			15(10.2)		mJ
Inverse Diode under following conditions:					
$V_F = V_{EC}$	$I_F=100\text{A}; V_{GE}=0\text{V}; T_J=25^{\circ}\text{C}$		2.18	2.50	V
$V_{(FO)}$	$T_J=25(150)^{\circ}\text{C}$		1.3(0.95)	1.5(1.1)	V
r_F	$T_J=25(150)^{\circ}\text{C}$		9.0(12.5)	10.2(13.7)	m Ω
I_{RRM}	$I_F=100\text{A}; T_J=150^{\circ}\text{C}$		54		A
Q_{rr}	$di/dt = 1600\text{A}/\mu\text{s}$		15.7		uC
E_{rr}	$V_{GE}=\pm 15\text{V}$		5.9		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.27	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.48	K/W
$R_{th(c-s)}$	per module			0.05	K/W
Mechanical Data					
M_s	to heatsink M5	3		5	Nm
M_t	to terminals M5	2.5		5	Nm
Weight	typical			160	g

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IGBT Modules

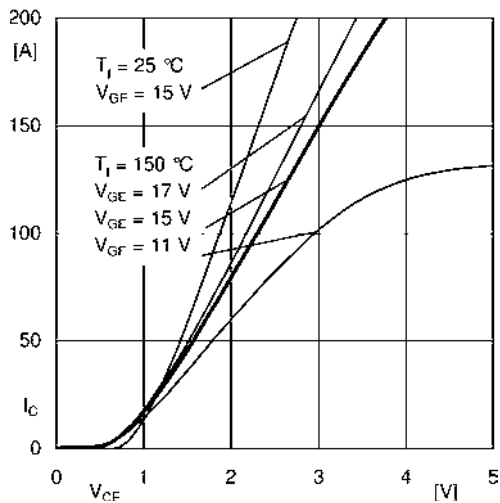


Fig. 1: Typ. output characteristic, inclusive RCC'+ EE'

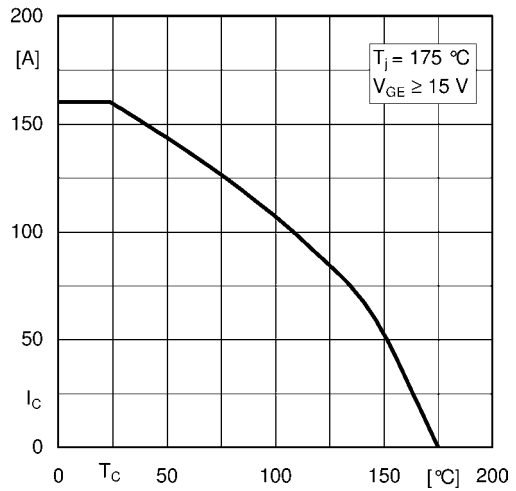


Fig. 2: Rated current vs. temperature $I_C=f(T_C)$

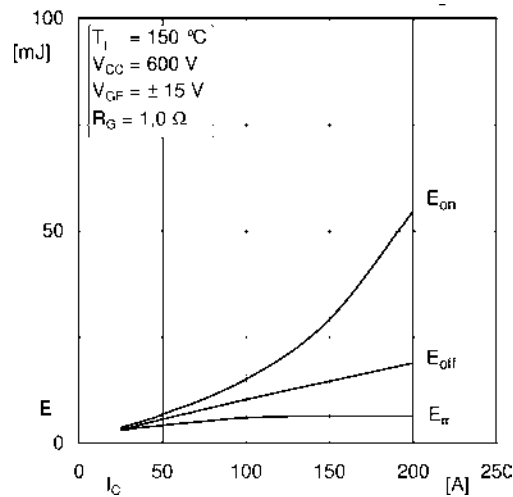


Fig. 3: Typ. turn-on /-off energy= $f(I_C)$

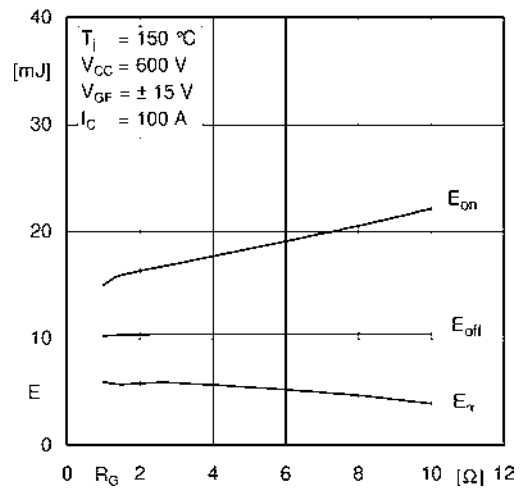


Fig. 4: Typ. turn-on /-off energy= $f(R_G)$

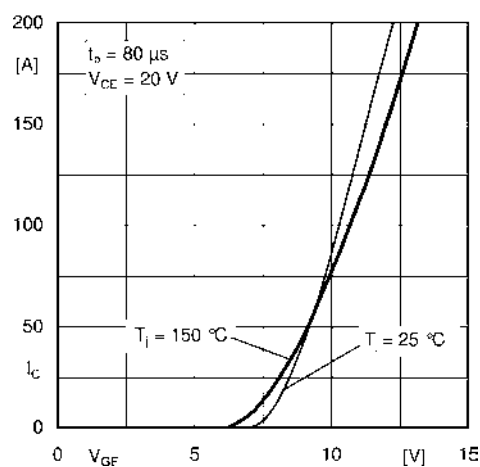


Fig. 5: Typ. transfer characteristic

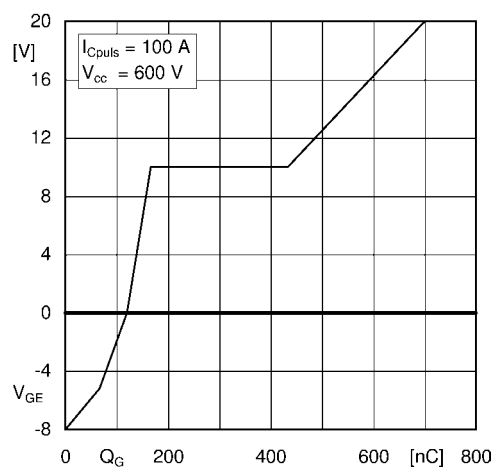


Fig. 6: Typ. gate charge characteristic

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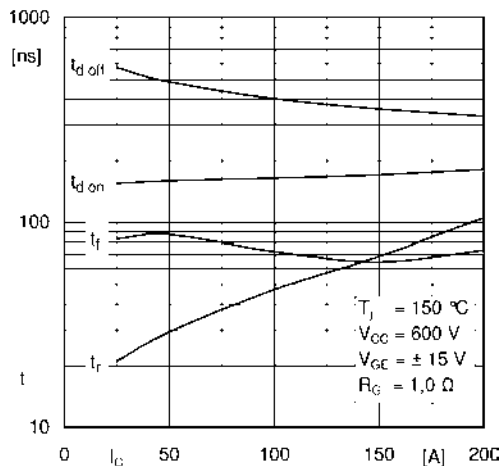


Fig. 7: Typ. switching times vs. I_C

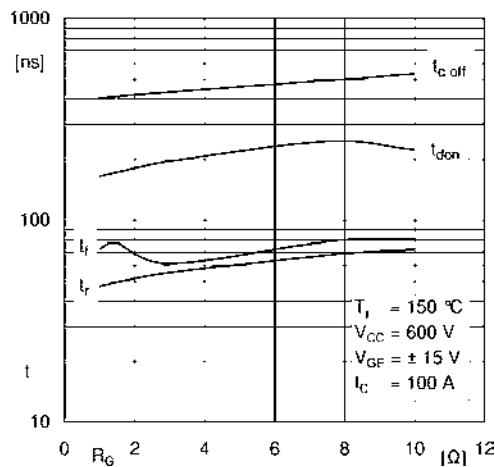


Fig. 8: Typ. switching times vs. gate resistor R_G

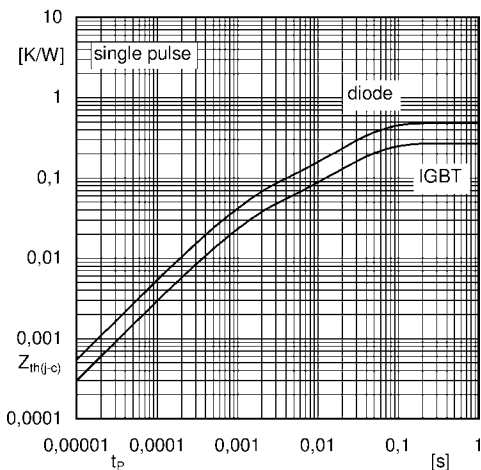


Fig. 9: Transient thermal impedance

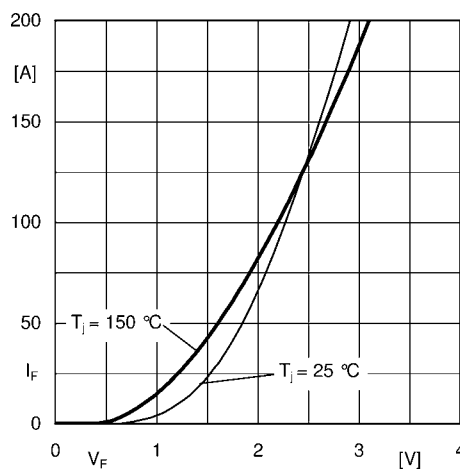


Fig. 10: Typ. FRD diode forward charact., incl. $R_{CC'+EE'}$

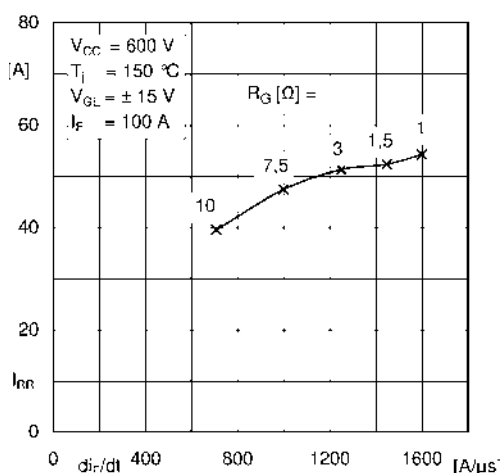


Fig. 11: FRD diode peak reverse recovery current

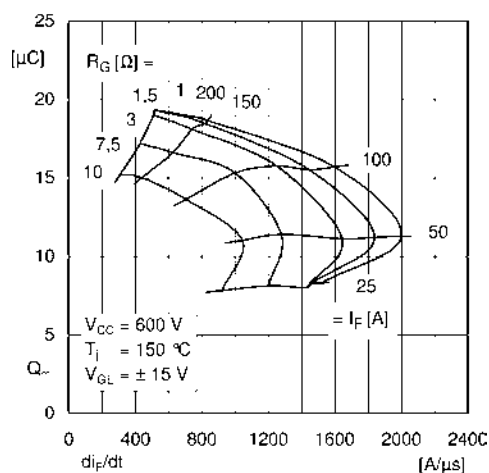


Fig. 12: Typ. FRD diode peak reverse recovery charge