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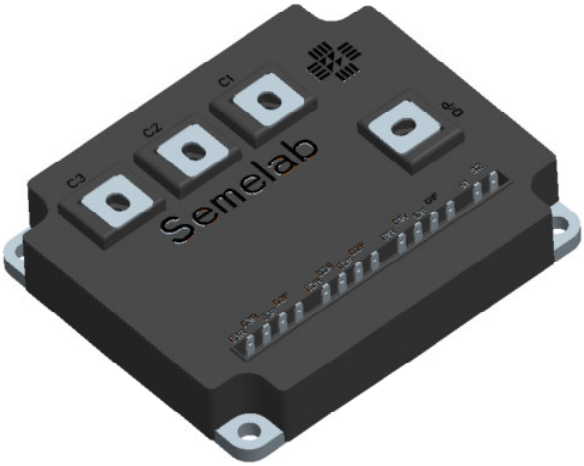

FEATURES

- **HIGH RELIABILTY PLASTIC HYBRID MODULE**
- **SUITABLE FOR MATRIX CONVERTER APPLICATIONS**
- **POSITIVE TEMPERATURE COEFFICIENT OF V_{CEsat}**
- **VERY LOW C_{ies}, C_{oes}, C_{res}**

Maximum Rated Values (At 25°C unless otherwise stated)

Symbol	Name	Conditions	Value	Unit
V_{CES}	Collector Emitter Voltage		1200	V
V_{GES}	Gate Emitter Voltage		±20	V
I_C	DC-Collector Current	T_C = 25˚C	200	A
		T_C = 65˚C	100	A
I_{CM}	Repetitive Peak Collector Current	T_C = 25˚C; t_P = 1ms	300	A
P_{TOT}	Power Dissipation	Per IGBT, T_{CASE} = 25˚C	1300	W
T_J	Operating Temperature		-55…+125	°C
T_{ST}	Storage Temperature		-55…+150	°C

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IGBT Characteristic Values

Symbol	Name	Conditions	min.	typ.	max.	Unit
$V_{(BR)CES}$	Collector Emitter Breakdown Voltage	V_{GE} = 0V, I_C = 4mA	1200	-	-	V
$V_{GE(th)}$	Gate Threshold Voltage		5.0	5.8	6.5	V
I_{CES}	Collector-Emitter Cut-Off Current		-	-	5000	µA
I_{GES}	Gate-Emitter Leakage Current		-	-	400	nA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	V_{GE} = 15V, I_C = 150A	-	1.75	2.15	V
C_{ies}	Input Capacitance	V_{GE} = 0V	-	10.5	-	µF
C_{res}	Reverse Transfer Capacitance	V_{CE} = 25V	-	0.4	-	nF
L_{CE}	Stray Inductance (module)	f = 1MHz, T_J = 125°C	-	15	-	nH
$T_{d(on)}$	Turn On Delay Time	V_{CC} = 600V	-	0.26	-	µs
T_r	Rise Time	V_{GE} = ±15V	-	0.03	-	µs
$T_{d(off)}$	Turn Off Delay Time	I_C = 300A ind. load	-	0.42	-	µs
T_f	Fall Time	$R_{G(on)}$ = $R_{G(off)}$ = 3.3Ω	-	0.07	-	µs
E_{on}	Turn On Energy Loss	T_J = 125°C	-	16	-	mJ
E_{off}	Turn Off Energy Loss		-	14.5	-	mJ

Inverse Diode Characteristic Values

Symbol	Name	Conditions	min.	typ.	max.	Unit
V_F	Forward Voltage	I_F = 150A, V_{GE} = 0V, T_J = 25°C	-	1.65	2.5	V
		I_F =150A, V_{GE} = 0V, T_J = 125°C	-	1.65	-	
I_{RRM}	Peak Reverse Recovery Current	I_F = 150A, T_J = 125°C	-	210	-	A
Q_{rr}	Reverse Recovery Charge	I_F = 150A, T_J = 125°C	-	30	-	µC
E_{REC}	Reverse Recovery Energy	I_F = 150A, T_J = 125°C	-	13.0	-	mJ

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Mechanical And Thermal Properties

Symbol	Name	Conditions	min.	typ.	max.	Unit
R_{thJC}	Thermal Resistance Junction to Case	per IGBT per Diode	- -	0.10 0.17	- -	$^{\circ}CW^{-1}$ $^{\circ}CW^{-1}$
R_{thCK}	Thermal Resistance Case to Heatsink	per module[1]	-	-	0.01	$^{\circ}CW^{-1}$
M	Mounting Torque	module mounting screw terminals	TBA TBA	- -	TBA TBA	Nm Nm
W	Module Weight		-	TBA	-	g

[1] thermal grease, planar heat-sink

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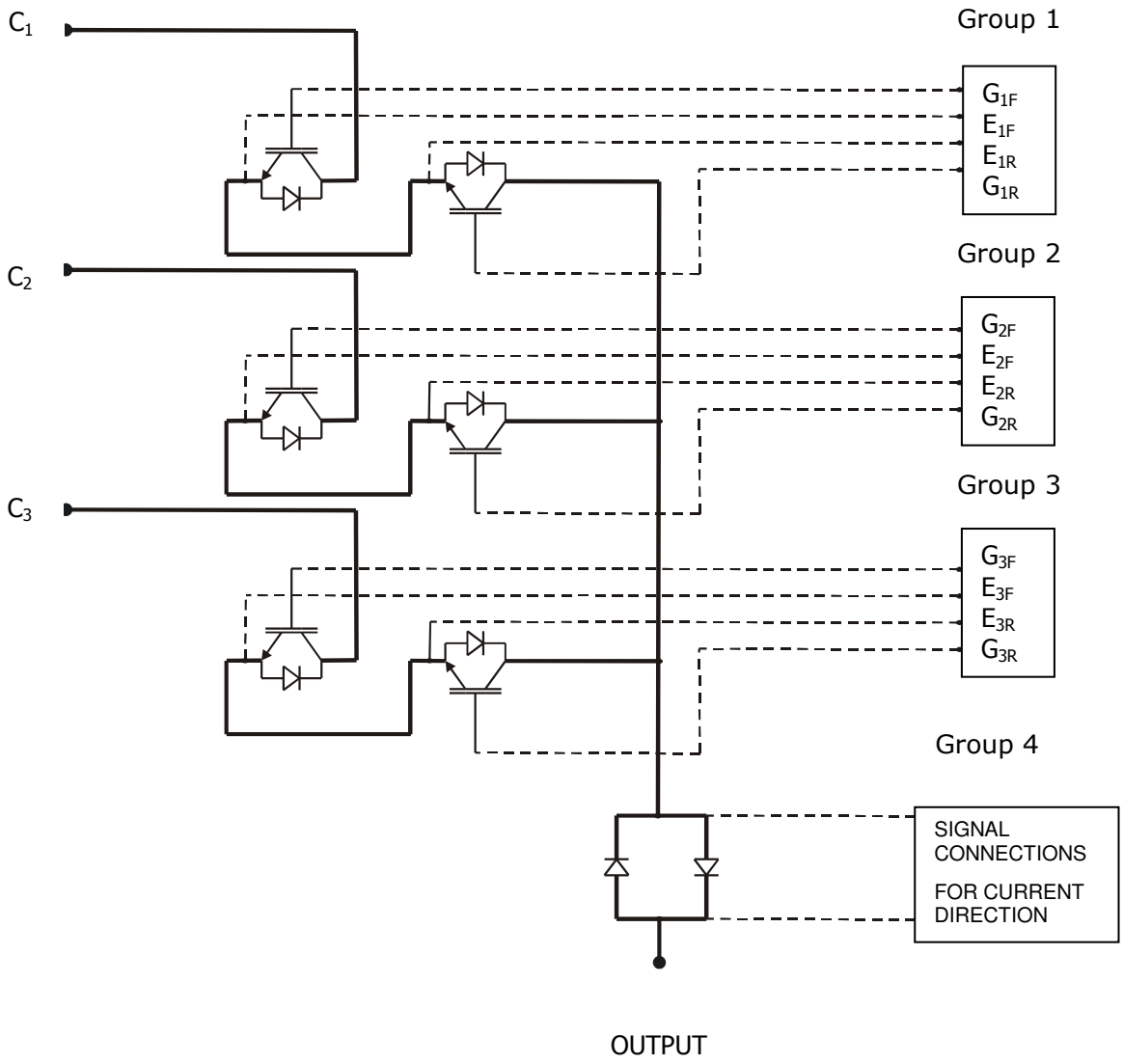
Package and Circuit

Circuit Diagram



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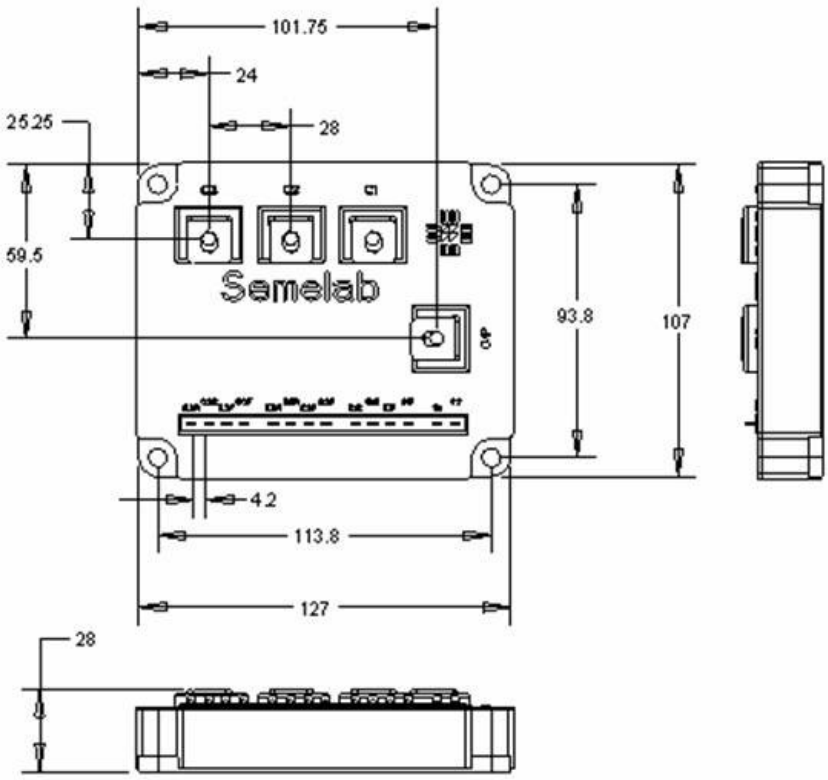
Package Outline



Dimensions in mm

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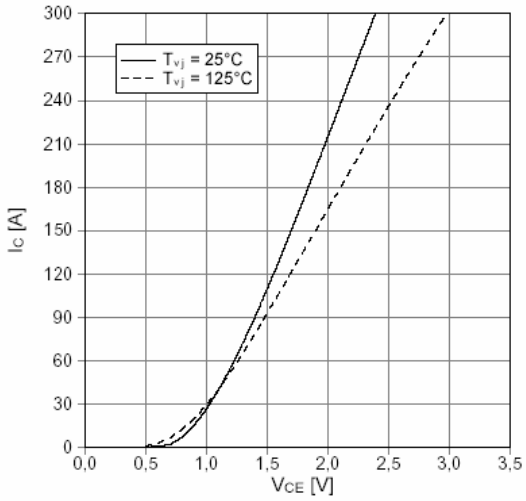
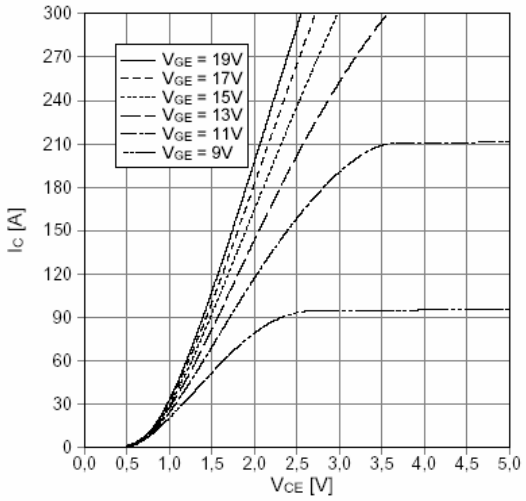
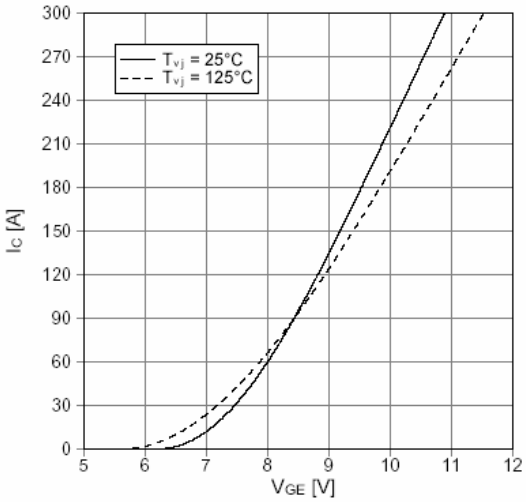
output characteristic IGBT-inverter (typical)
$I_C = f(V_{CE})$
V_{GE} = 15 V



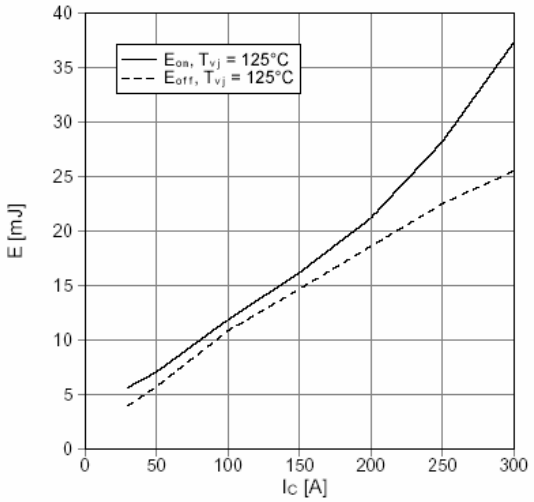
output characteristic IGBT-inverter (typical)
$I_C = f(V_{CE})$
T_{vj} = 125°C



transfer characteristic IGBT-inverter (typical)
$I_C = f(V_{GE})$
V_{CE} = 20 V



switching losses IGBT-inverter (typical)
$E_{on} = f(I_C)$, $E_{off} = f(I_C)$
V_{GE} = ±15 V, R_{Gon} = 2,4 Ω, R_{Goff} = 2,4 Ω, V_{CE} = 600 V



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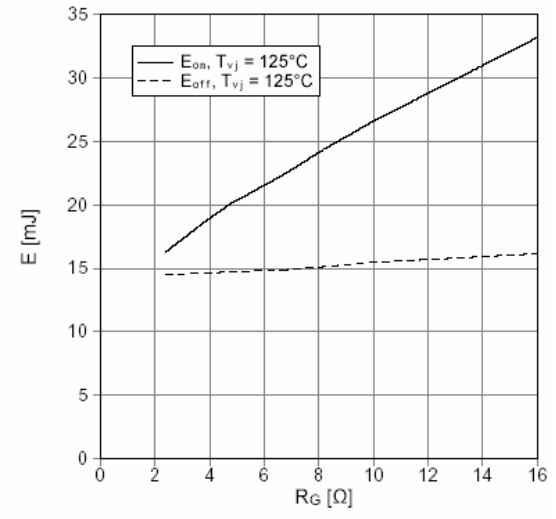
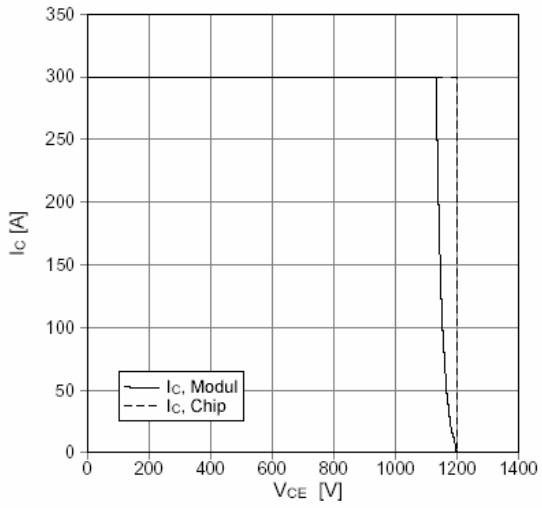
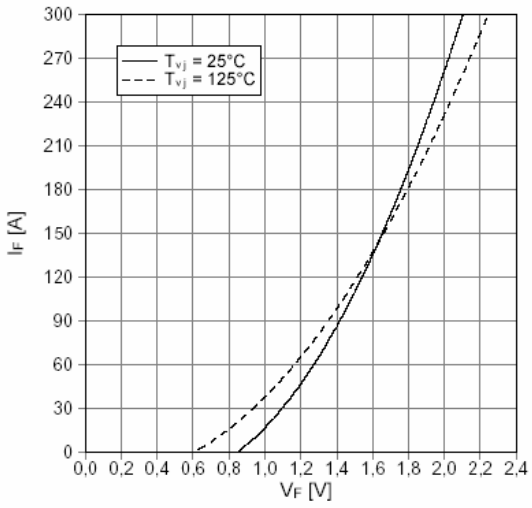
switching losses IGBT-Inverter (typical)
$E_{on} = f(R_G)$, $E_{off} = f(R_G)$
V_{GE} = ±15 V, I_C = 150 A, V_{CE} = 600 V



reverse bias safe operating area IGBT-inv. (RBSOA)
$I_C = f(V_{CE})$
V_{GE} = ±15 V, R_{Goff} = 2,4 Ω, T_{vj} = 125°C



forward characteristic of diode-inverter (typical)
$I_F = f(V_F)$



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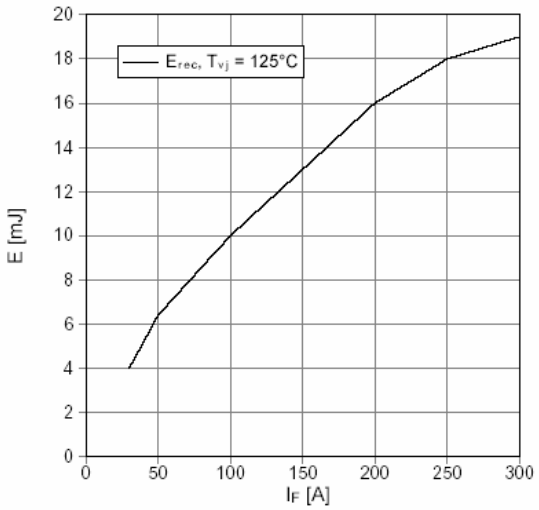
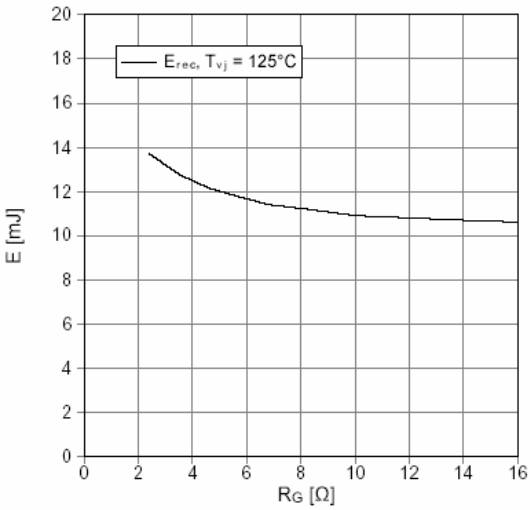
switching losses diode-inverter (typical)
$E_{rec} = f(I_F)$
$R_{Gon} = 2{,}4\ \Omega$, $V_{CE} = 600$ V



switching losses diode-inverter (typical)
$E_{rec} = f(R_G)$
$I_F = 150$ A, $V_{CE} = 600$ V



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