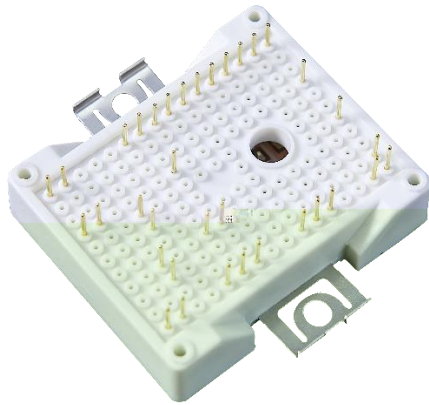




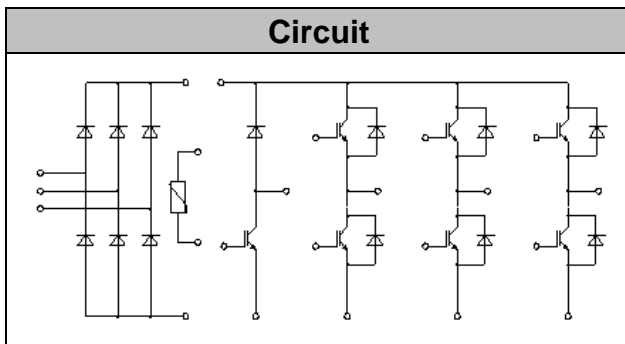
MG25P12P3

P
AM N L



1200V
25A

Motor Drivers
AC and DC servo drive amplifier
UPS (Uninterruptible Power Supplies)



Low switching losses
Low $V_{ce(sat)}$ with positive temperature coefficient
Including fast & soft recovery anti-parallel FWD
Low inductance case
High short circuit capability(10us)
Isolated heatsink using DBC technology
Maximum junction temperature 175

Collector-Emitter Voltage	V_{CES}	$V_{GE}=0V, I_C = 1mA, T_{vj}=25$	1200	V
Continuous Collector Current	I_C	$T_c=100$ v_{jmax} 175	25	A
Repetitive Peak Collector Current	I_{CRM}	$tp=1ms$	50	A
Gate-Emitter Voltage	V_{GES}	$T_{vj}=25$	20	V
Total Power Dissipation	P_{tot}	$T_c=25$ $T_{vjmax}=175$	175	W



Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=1.2mA, T_{vj}=25$	5.2	5.8	6.4	V	
Collector-Emitter Cut-off Current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V, T_{vj}=25$			1.0	mA	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=25A, V_{GE}=15V, T_{vj}=25$		1.85	2.25	V	
		$I_C=25A, V_{GE}=15V, T_{vj}=125$		2.15			
		$I_C=25A, V_{GE}=15V, T_{vj}=150$		2.25			
Gate Charge	Q_G			0.20		uC	
Input Capacitance	C_{ies}	$V_{CE}=25V, V_{GE}=0V,$ $f=1MHz, T_{vj}=25$		1.90		nF	
Reverse Transfer Capacitance	C_{res}			0.10		nF	
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=20V, T_{vj}=25$			400	nA	
Turn-on Delay Time	$t_{d(on)}$	$I_C=25A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=20\Omega$ $T_{vj}=25$		26		ns	
Rise Time	t_r			17		ns	
Turn-off Delay Time	$t_{d(off)}$			194		ns	
Fall Time	t_f			181		ns	
Energy Dissipation During Turn-on Time	E_{on}			1.62		mJ	
Energy Dissipation During Turn-off Time	E_{off}			1.44		mJ	
Turn-on Delay Time	$t_{d(on)}$		$I_C=25A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=20\Omega$ $T_{vj}=125$		28		ns
Rise Time	t_r				21		ns
Turn-off Delay Time	$t_{d(off)}$				284		ns
Fall Time	t_f				212		ns
Energy Dissipation During Turn-on Time	E_{on}			2.4		mJ	
Energy Dissipation During Turn-off Time	E_{off}			2.18		mJ	
SC Data	I_{sc}	$T_p \leq 10\mu s, V_{GE}=15V, T_{vj}=150$, $V_{cc}=900V, V_{CEM} \leq 1200V$			120		A



Repetitive Peak Reverse Voltage	V_{RRM}	$T_{vj}=25$	1200	V
Continuous DC Forward Current	I_F		25	A
Repetitive Peak Forward Current	I_{FRM}	$t_p=1ms$	50	A
I^2t -value	I^2t	$V_R=0, t_p=10ms, T_{vj}=125$	90.0	A ² s
		$V_R=0, t_p=10ms, T_{vj}=150$	75.0	

Forward Voltage	V_F	$I_F=25A, T_{vj}=25$		2.10	2.50	V
		$I_F=25A, T_{vj}=125$		2.20		
		$I_F=25A, T_{vj}=150$		2.20		
Recovered Charge	Q_{rr}	$I_F = 25 A$		2.52		μC
Peak Reverse Recovery Current	I_{rr}	$V_R=600V$ $-di_F/dt = 1700A/\mu s$		28.5		A
Reverse Recovery Energy	E_{rec}	$T_{vj}=25$		0.94		mJ
Recovered Charge	Q_{rr}	$I_F = 25 A$		50.8		μC
Peak Reverse Recovery Current	I_{rr}	$V_R=600V$ $-di_F/dt = 1700A/\mu s$		30.5		A
Reverse Recovery Energy	E_{rec}	$T_{vj}=125$		1.75		mJ



Collector-Emitter Voltage	V_{CES}	$V_{GE}=0V, I_C=1mA, T_{vj}=25$	1200	V
Continuous Collector Current	I_C	$T_c=100, v_{jmax} 175$	25	A
Repetitive Peak Collector Current	I_{CRM}	$t_p=1ms$	50	A
Gate-Emitter Voltage	V_{GES}	$T_{vj}=25$	20	V
Total Power Dissipation	P_{tot}	$T_c=25, T_{vjmax}=175$	175	W

Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=1.2mA, T_{vj}=25$	5.2	5.8	6.4	V
Collector-Emitter Cut-off Current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V, T_{vj}=25$			1.0	mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=25A, V_{GE}=15V, T_{vj}=25$		1.85	2.25	V
		$I_C=25A, V_{GE}=15V, T_{vj}=125$		2.15		
		$I_C=25A, V_{GE}=15V, T_{vj}=150$		2.25		
Gate Charge	Q_G			0.20		uC
Input Capacitance	C_{ies}	$V_{CE}=25V, V_{GE}=0V, f=1MHz, T_{vj}=25$		1.90		nF
Reverse Transfer Capacitance	C_{res}			0.10		nF
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=20V, T_{vj}=25$			400	nA
Turn-on Delay Time	$t_{d(on)}$	$I_C=25A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=20\Omega$ $T_{vj}=25$		26		ns
Rise Time	t_r			17		ns
Turn-off Delay Time	$t_{d(off)}$			194		ns
Fall Time	t_f			181		ns
Energy Dissipation During Turn-on Time	E_{on}			1.62		mJ
Energy Dissipation During Turn-off Time	E_{off}			1.44		mJ



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Turn-on Delay Time	$t_{d(on)}$	$I_C = 25\text{ A}$ $V_{CE} = 600\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_G = 20\Omega$ $T_{vj} = 125$	28	ns
Rise Time	t_r		21	ns
Turn-off Delay Time	$t_{d(off)}$		284	ns
Fall Time	t_f		212	ns
Energy Dissipation During Turn-on Time	E_{on}		2.4	mJ
Energy Dissipation During Turn-off Time	E_{off}		2.18	mJ
SC Data	I_{sc}		$T_p \leq 10\mu\text{s}, V_{GE} = 15\text{ V}, T_{vj} = 150$, $V_{cc} = 900\text{ V}, V_{CEM} \leq 1200\text{ V}$	120

Repetitive Peak Reverse Voltage	V_{RRM}	$T_{vj} = 25$	1200	V
Continuous DC Forward Current	I_F		15	A
Repetitive Peak Forward Current	I_{FRM}	$t_p = 1\text{ ms}$	30	A
I^2t -value	I^2t	$V_R = 0, t_p = 10\text{ ms}, T_{vj} = 125$	16.0	A ² s
		$V_R = 0, t_p = 10\text{ ms}, T_{vj} = 150$	14.0	

Forward Voltage	V_F	$I_F = 15\text{ A}, T_{vj} = 25$	2.00	2.65	V
		$I_F = 15\text{ A}, T_{vj} = 125$	2.10		
		$I_F = 15\text{ A}, T_{vj} = 150$	2.10		
Recovered Charge	Q_{rr}	$I_F = 15\text{ A}$	1.20		uC
Peak Reverse Recovery Current	I_{rr}	$V_R = 600\text{ V}$ $-di_F/dt = 600\text{ A}/\mu\text{s}$	13.0		A
Reverse Recovery Energy	E_{rec}	$T_{vj} = 25$	0.37		mJ
Recovered Charge	Q_{rr}	$I_F = 15\text{ A}$	2.05		uC
Peak Reverse Recovery Current	I_{rr}	$V_R = 600\text{ V}$ $-di_F/dt = 600\text{ A}/\mu\text{s}$	12.0		A
Reverse Recovery Energy	E_{rec}	$T_{vj} = 125$	0.68		mJ



Repetitive Peak Reverse Voltage	V_{RRM}	$T_j=25$	1600	V
Average output Current 50/60Hz, sine wave	$I_{F(AV)}$	$T_c=100$	35	A
Maximum RMS Current at Rectifier Output	I_{RMSM}	$T_c=100$	60	A
Surge Forward Current	I_{FSM}	$V_R=0, t_p=10ms, T_j=45$	320	A
I^2t -value	I^2t	$V_R=0, t_p=10ms, T_j=45$	510	A ² s

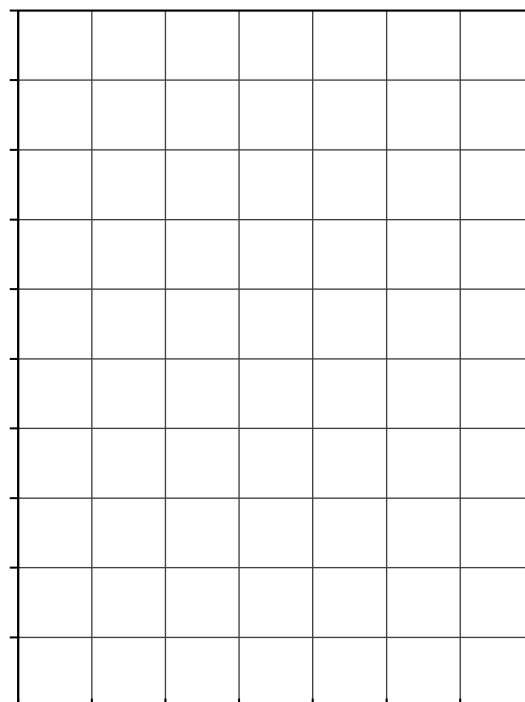
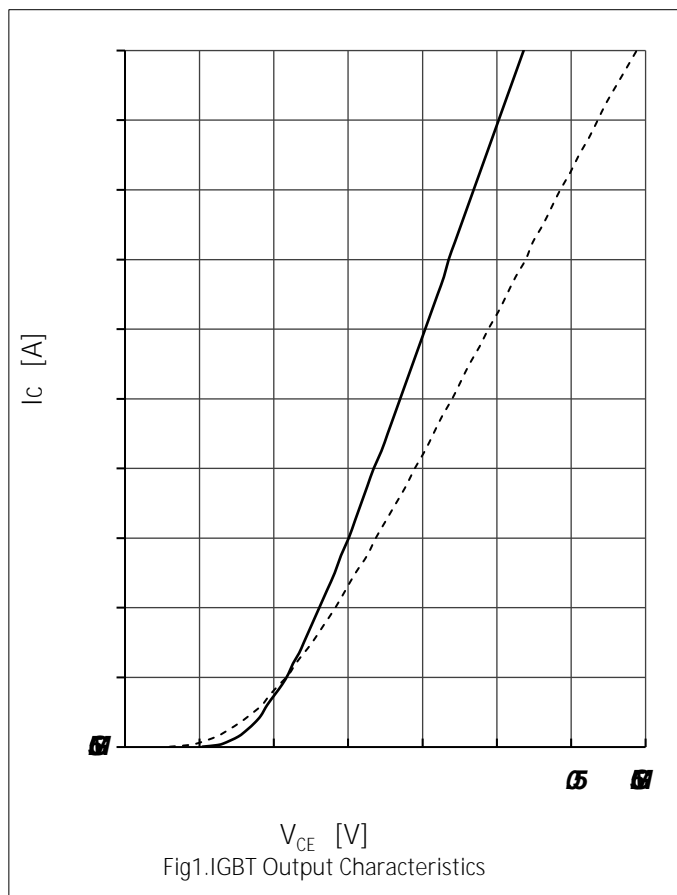
Diode Forward Voltage	V_F	$I_F=10A, T_j=150$		1.02	V
Reverse Current	I_R	$T_j=150, V_R=1600V$		2	mA

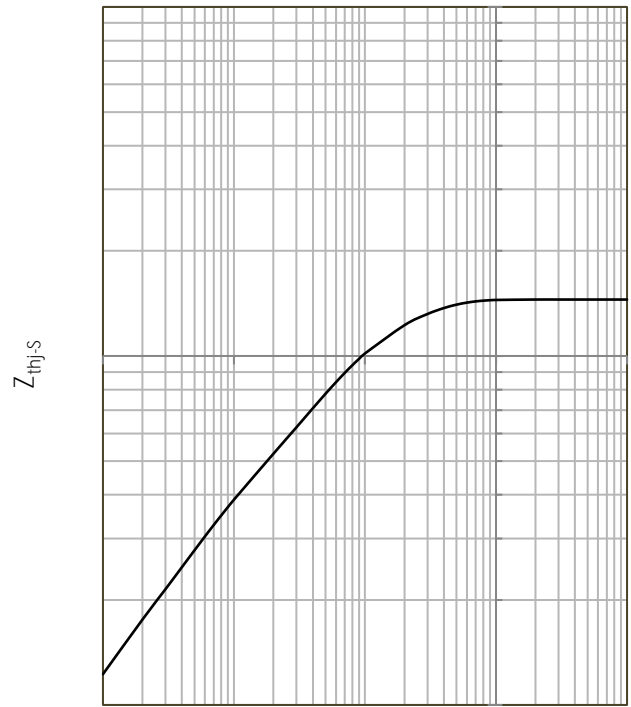
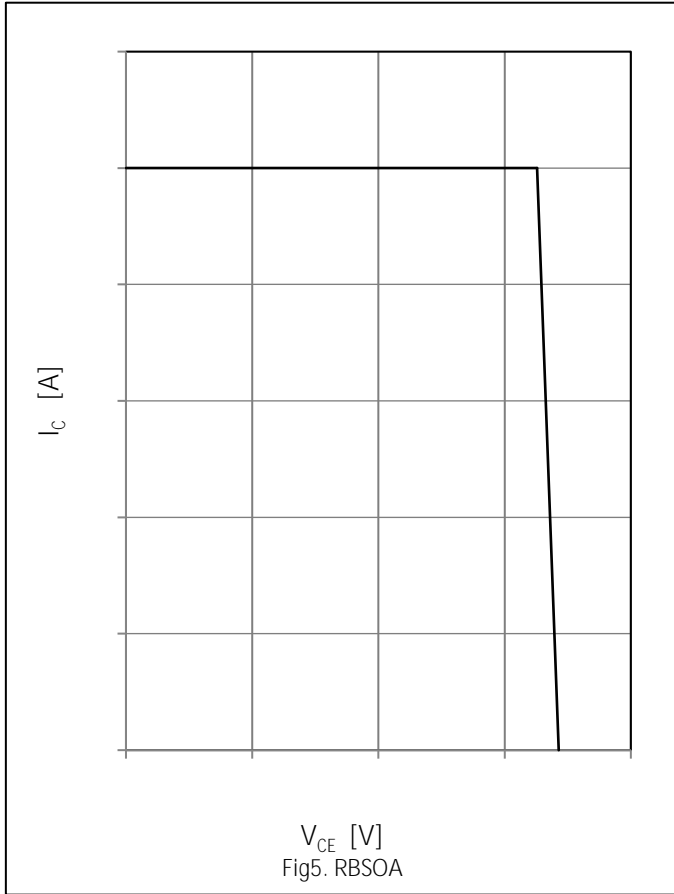
Rated Resistance	R_{25}			5.0	k Ω
Deviation of R100	R/R	$T_c=100, R_{100}=493.3 \Omega$	-5	5	%
Power Dissipation	P_{25}			20.0	mW
B-value	$B_{25/50}$	$R_2=R_{25}\exp[B_{25/50}(1/T_2-1/(298.15 K))]$		3375	K

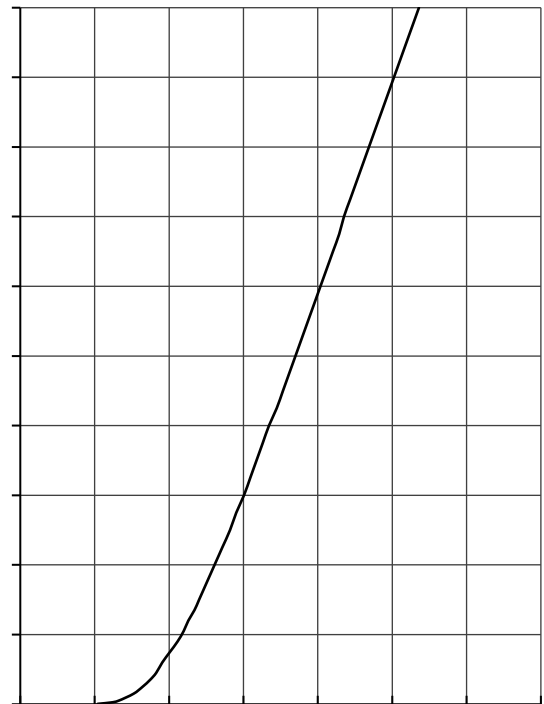
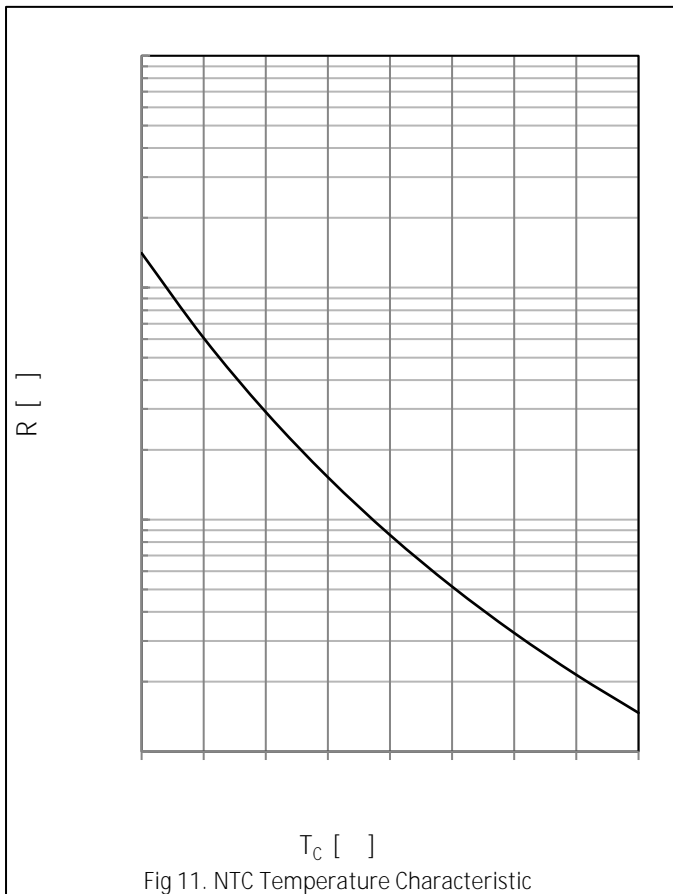
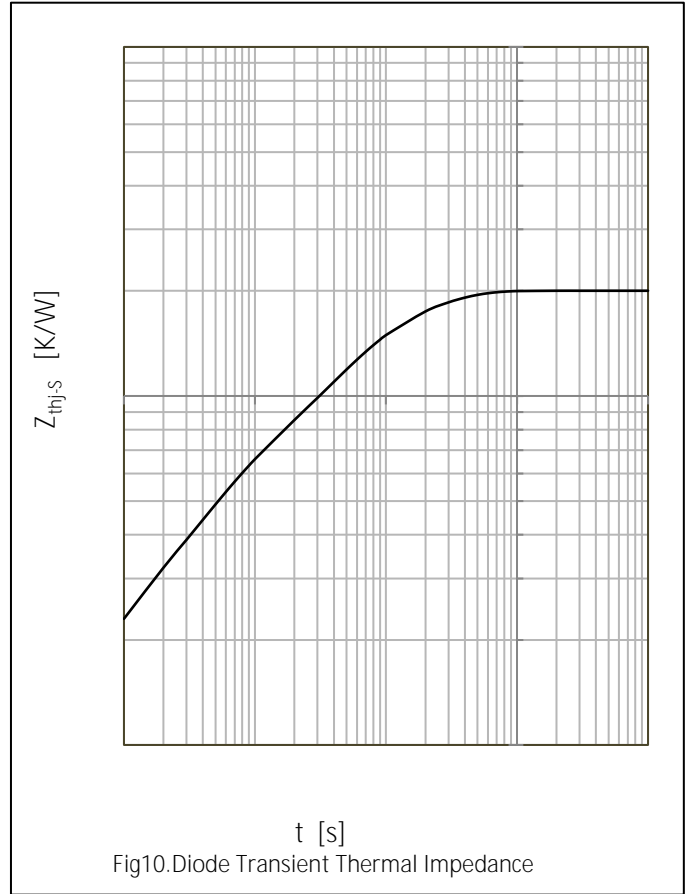
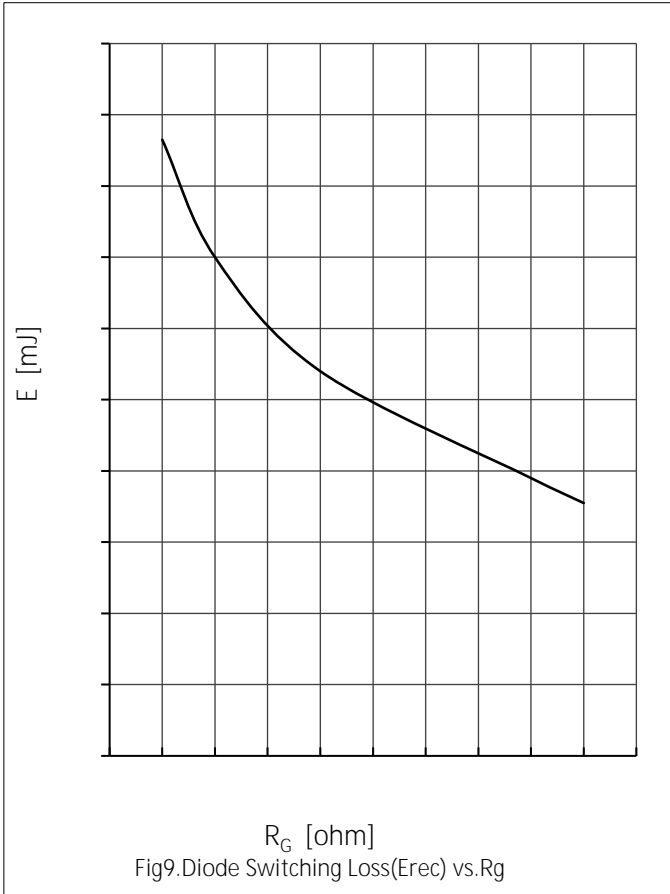


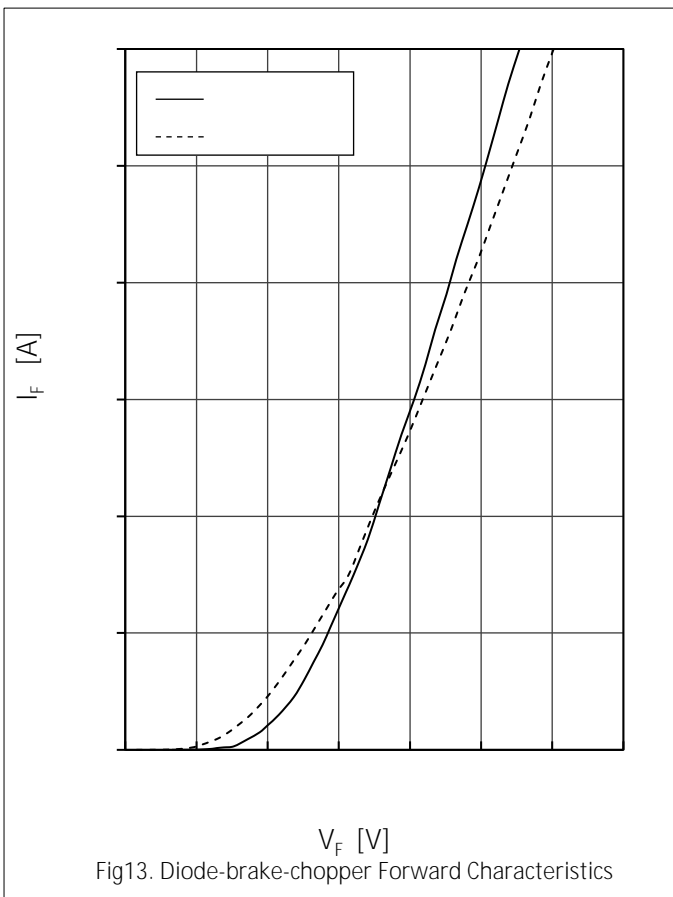
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Isolation voltage	V_{isol}	$t=1\text{min}, f=50\text{Hz}$	2500			V
Maximum Junction Temperature	T_{jmax}				175	
Operating Junction Temperature	$T_{vj\text{op}}$		-40		150	
Storage Temperature	T_{stg}		-40		125	
Stray-inductance-module	L_{SCE}			30		
Module lead resistance, terminals-chip	$R_{cc'+EE'}$	$T_C=25$, per switch		5.00		6
	$R_{AA'+CC'}$			6.00		
Thermal Resistance Junction-to Case	R_{JC}	per IGBT-inverter		0.75	0.85	KW
		per Diode-inverter		1.10	1.20	
		per IGBT				











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