

● IGBT- inverter

Characteristic values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
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

● **Diode-inverter**

Absolute Maximum Ratings

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

Characteristic values

Parameter	Symbol	Conditions			Unit
			Min.	Typ.	
Forward Voltage					

Forward Voltage

● **IGBT-brake-chopper**

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
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

Characteristic values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
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

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

● Diode-Brake-Chopper

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
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	

Characteristic values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
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

● Diode-Rectifier

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
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

Characteristic values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
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

● NTC-Thermistor

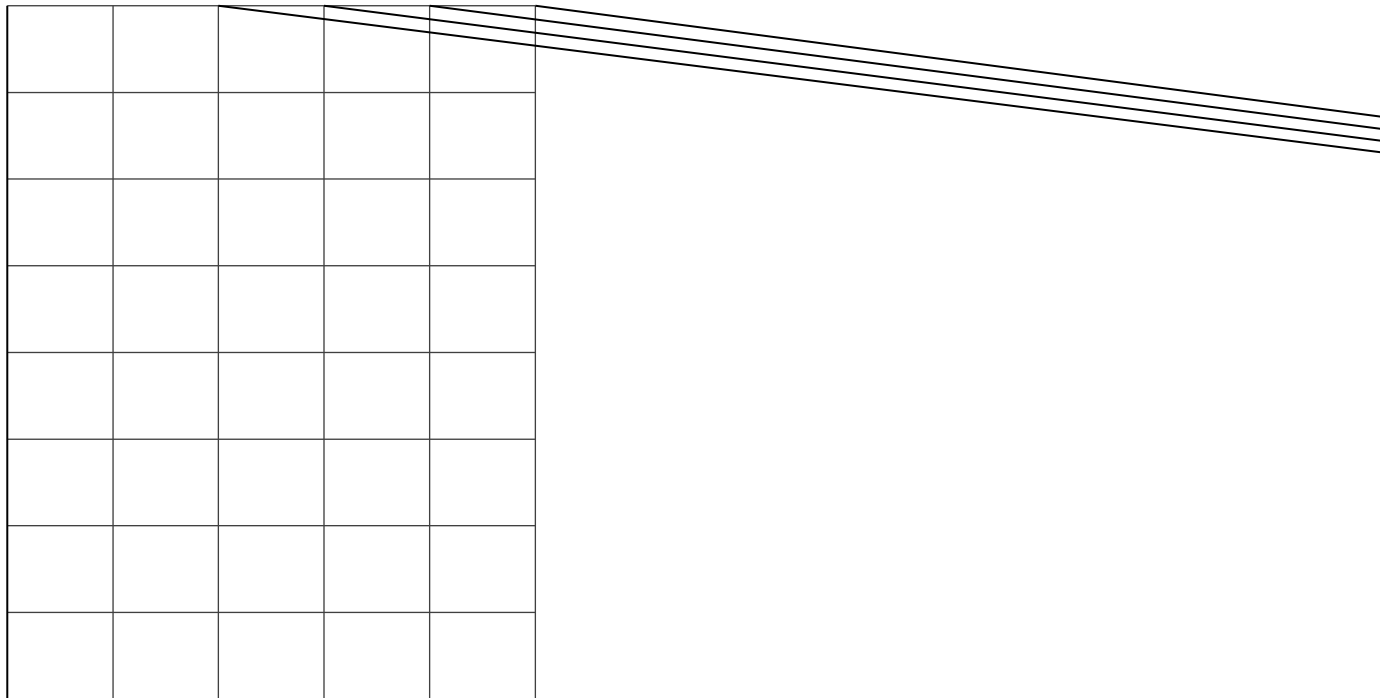
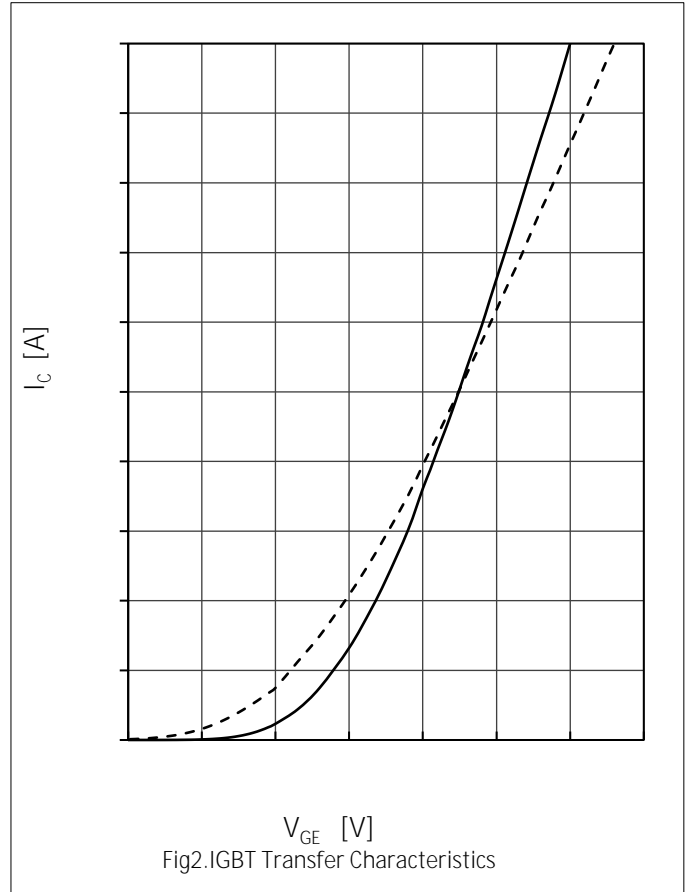
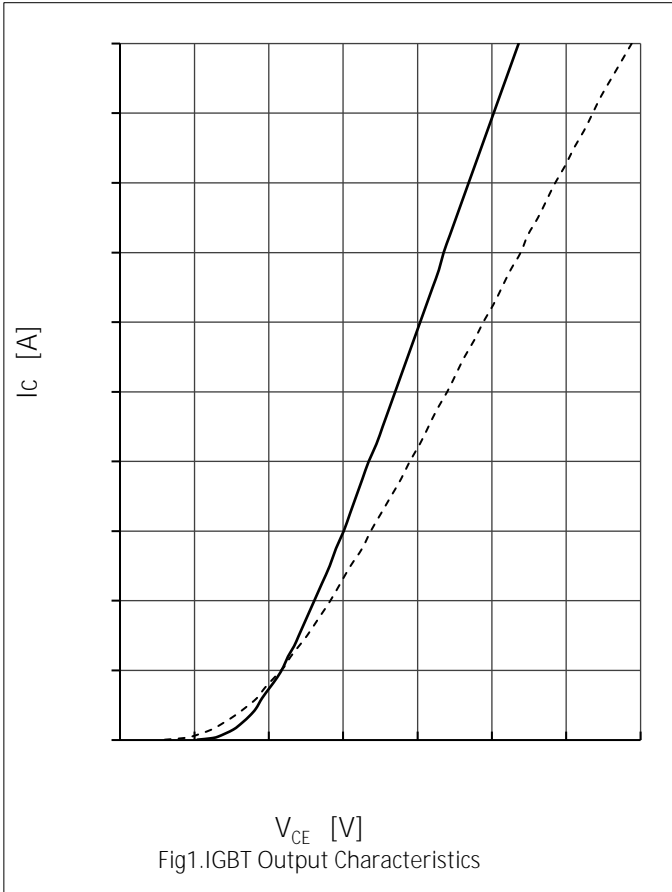
Characteristic values

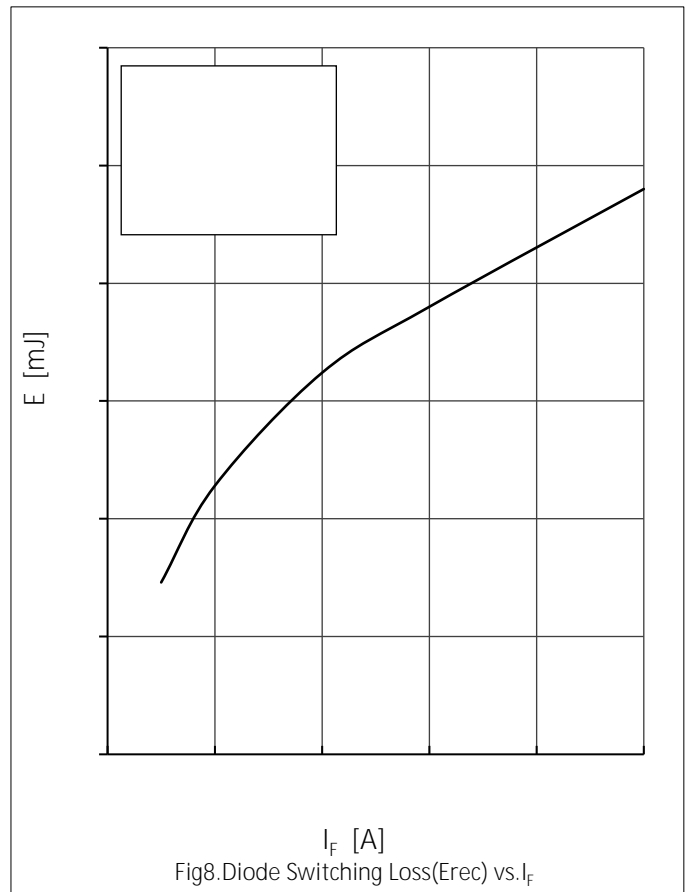
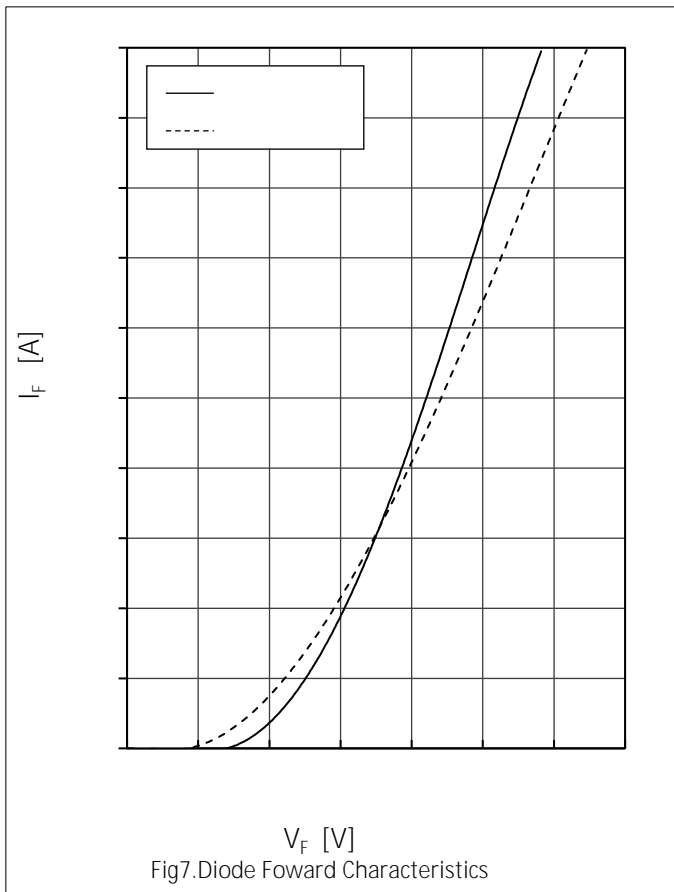
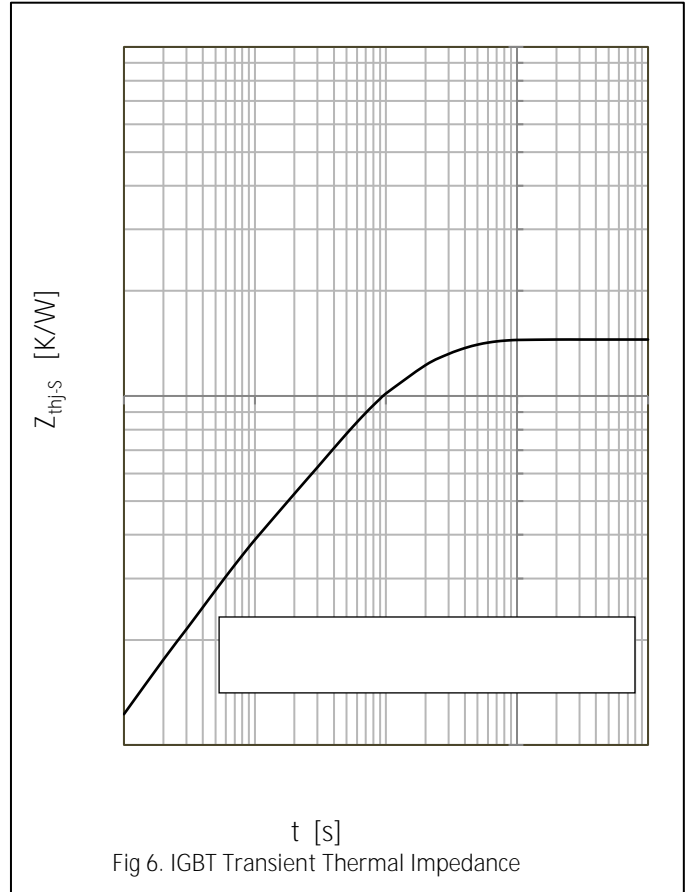
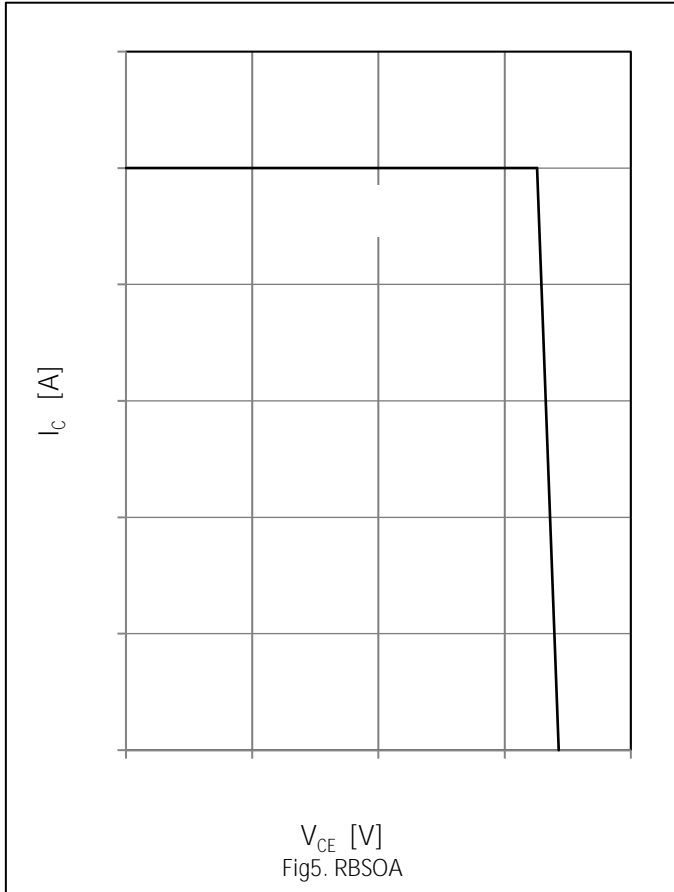
Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Rated Resistance	R_{25}			5.0		k
Deviation of R100	R/R	$T_c=100, R_{100}=493.3$	-5		5	%
Power Dissipation	P_{25}				20.0	mW
B-value	$B_{25/50}$	$R_2=R_{25}\exp[B_{25/50}(1/T_2-1/(298.15 K))]$		3375		K

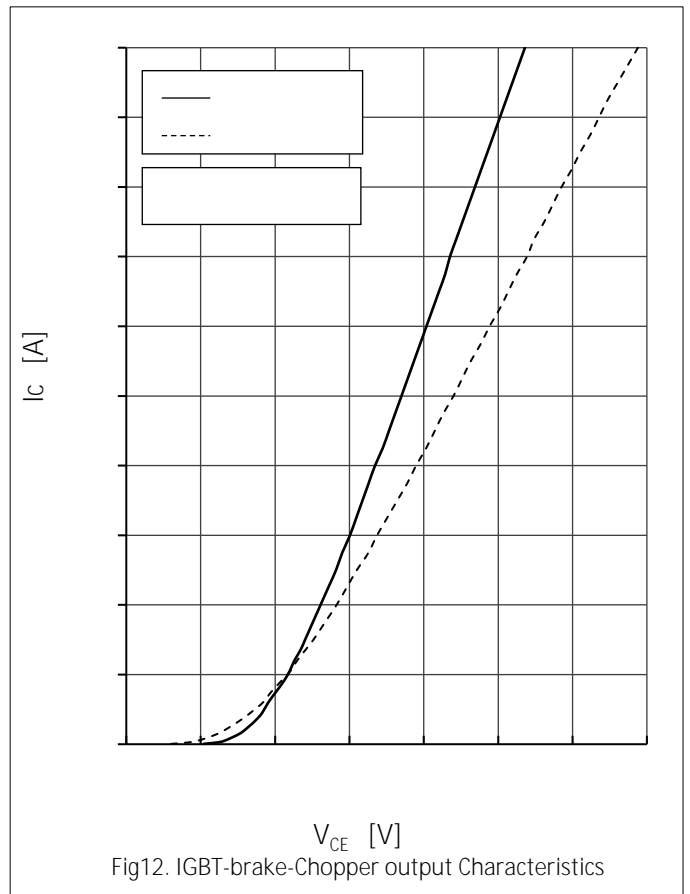
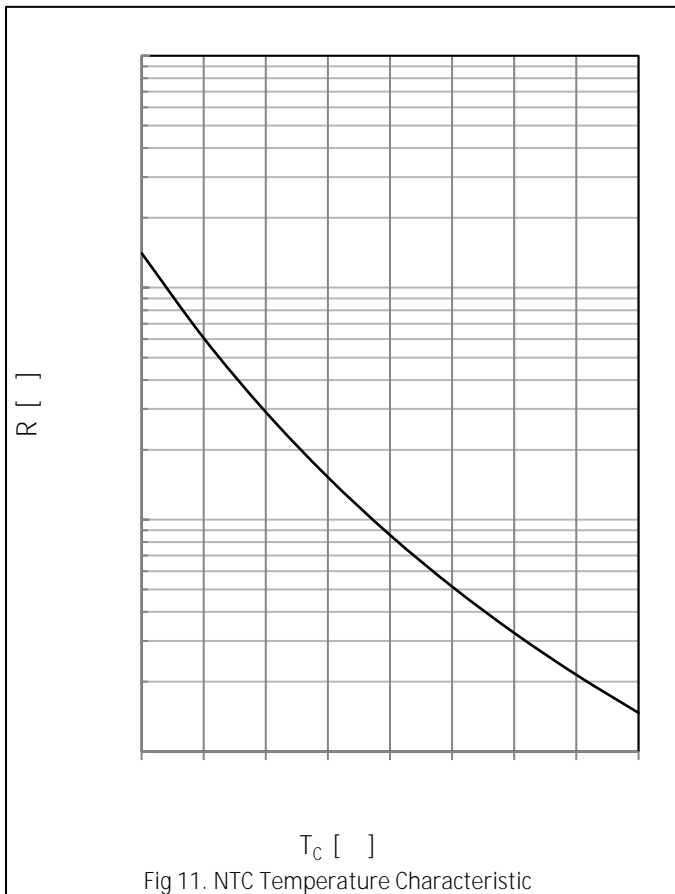
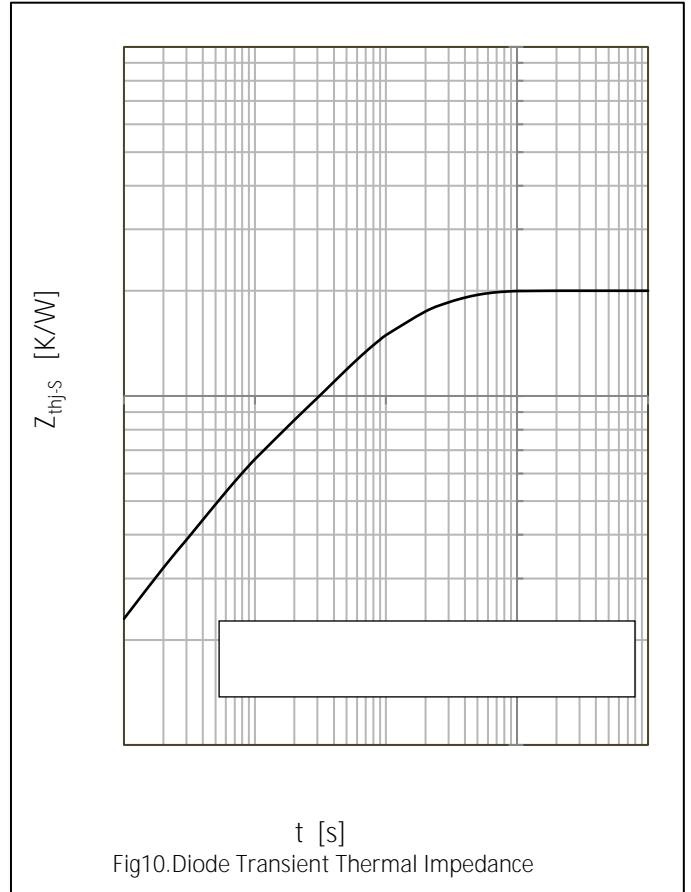
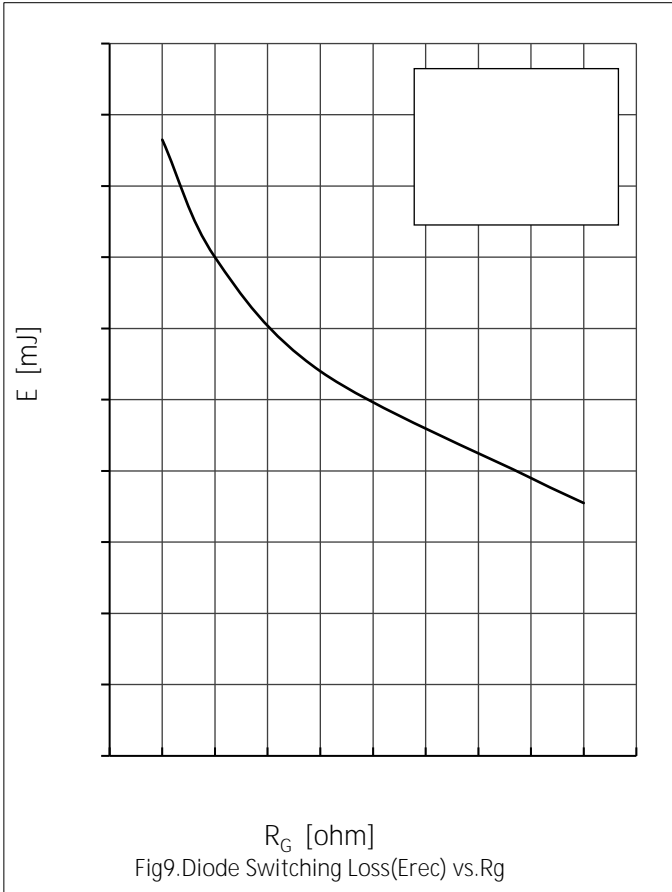
● Module Characteristics

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

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Isolation voltage	V_{isol}	$t=1\text{min}, f=50\text{Hz}$	2500			V
Maximum Junction Temperature	T_{jmax}				175	
Operating Junction Temperature	$T_{\text{vj op}}$		-40		150	
Storage Temperature	T_{stg}		-40		125	
Stray-inductance-module	L_{SCE}			30		
Module lead resistance, terminals-chip	$R_{\text{CC'+EE'}}$	$T_C=25^{\circ}\text{C}$, per switch		5.00		
	$R_{\text{AA'+CC'}}$			6.00		
Thermal Resistance Junction-to Case	R_{JC}	per IGBT-inverter		0.75	0.85	K/W
		per Diode-inverter		1.10	1.20	
		per IGBT-brake-copper		0.75	0.85	
		per Diode-chopper		1.30	1.45	
		per Diode-rectifier		0.90	1.25	
Thermal Resistance Case-to Sink	R_{CS}	per IGBT-inverter		0.70		K/W
		per Diode-inverter		0.90		
		per IGBT-brake-copper		0.70		
		per Diode-chopper		1.05		
		per Diode-rectifier		0.95		
		per Module		0.037		
Mounting Force Per Clamp	F		30		80	N
Weight of Module	G			45		g







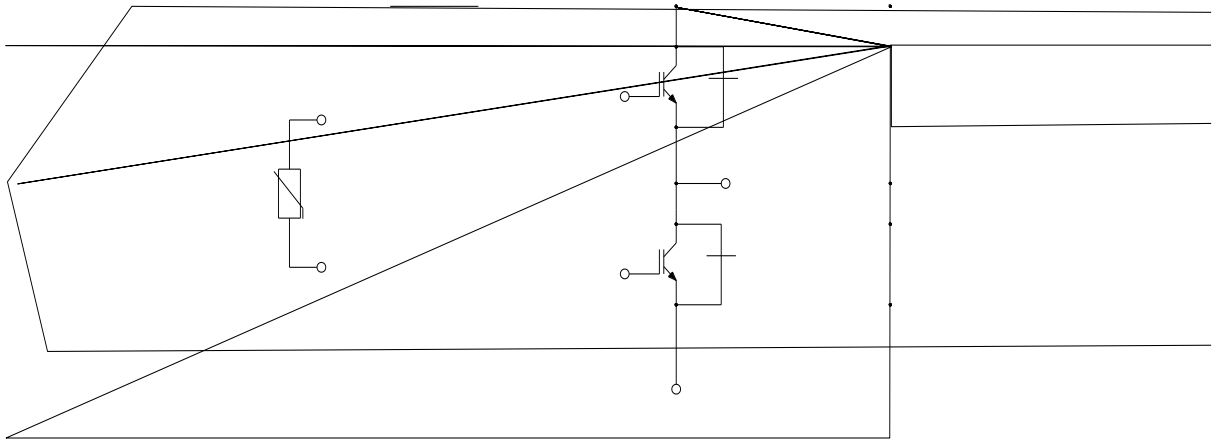


MG25P12P3

RoHS
COMPLIANT



Circuit Diagram



● Package Dimensions

