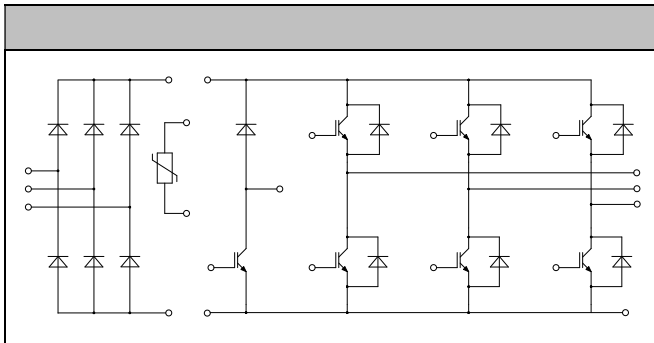




120V
100A

MicroDives
AC and DC semiconductor 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 (10s)
Maximum junction temperature 175°C

Collector-Emitter Voltage	V_{CES}	$V_{CE} = 0V, I_C = 1mA, T_J = 25$	120	V
Continuous Collector Current	I_C	$T_C = 80$ $T_{Jmax} = 175$	100	A
Repetitive Peak Collector Current	I_{CRM}	$t_p = 1ms$	200	A
Gate-Emitter Voltage	V_{GES}	$T_J = 25$	20	V
Total Power Dissipation	P_{tot}	$T_C = 25$ $T_{Jmax} = 175$	555	W

Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=33mA, T_j=25$	50	58	65	V	
Collector-Emitter Cut-off Current	I_{CES}	$V_{CE}=120V, V_{GE}=0V, T_j=25C$			10	nA	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10A, V_{GE}=15V, T_j=25$		185	225	V	
		$I_C=10A, V_{GE}=15V, T_j=125$		215			
		$I_C=10A, V_{GE}=15V, T_j=150$		225			
Gate Charge	Q_g			078		µC	
Input Capacitance	C_{is}	$V_{CE}=25V, V_{GE}=0V$		68		pF	
Reverse Transfer Capacitance	C_{es}	$f=1MHz, T_j=25C$		032		pF	
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=20V, T_j=25$			40	nA	
Turn-on Delay/line	$t_{(on)}$	$I_C=10A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $I_s=35A$ Inductive Load		160		ns	
Rise time	t_r			45		ns	
Turn-off Delay/line	$t_{(off)}$			215		ns	
Fall time	t_f			54		ns	
Energy Dissipation During Turn-on line	E_{on}		$R_{\theta}=56$ $T_j=25$		92		nJ
Energy Dissipation During Turn-off line	E_{off}				58		nJ
Turn-on Delay/line	$t_{(on)}$		$I_C=10A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $I_s=35A$ Inductive Load		180		ns
Rise time	t_r				52		ns
Turn-off Delay/line	$t_{(off)}$				330		ns
Fall time	t_f				63		ns
Energy Dissipation During Turn-on line	E_{on}	$R_{\theta}=56$ $T_j=125$			132		nJ
Energy Dissipation During Turn-off line	E_{off}				94		nJ
SCData	I_C	$T_p=10s, V_{CE}=15V, T_j=150, V_{CE}=300V, V_{CEM}=120V$		500		A	

Repetitive Peak Reverse Voltage	V_{RM}	$T_j=25$	120	V
Continuous DC Forward Current	I_F		100	A
Repetitive Peak Forward Current	I_{RM}	$t_F=1ms$	200	A
R_{th(j-c)}	R_{th}	$V_F=0, t_F=10ms, T_j=125$	150	$^{\circ}C/W$
		$V_F=0, t_F=10ms, T_j=150$	150	

Forward Voltage	V_F	$I_F=10A, T_j=25$	180	240	V
		$I_F=10A, T_j=125$	185		
		$I_F=10A, T_j=150$	185		
Recovered Charge	Q_r	$I_F=10A$	88		μC
Peak Reverse Recovery Current	I_{rr}	$V_F=60V$ $-dI_F/dt=300A/\mu s$	105		A
Reverse Recovery Energy	E_{rr}	$T_j=25$	32		nJ
Recovered Charge	Q_r	$I_F=10A$	162		μC
		$V_F=60V$ $-dI_F/dt=300A/\mu s$	115		A
		$T_j=125$	54		nJ



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Collector-Emitter Voltage

V_{CE}

$V_{CE} = 0V, I_C = 1mA, T_j = 25$



TurnonDelay/line	t_{on}	$I_C=50A$ $V_{CE}=60V$ $V_{GE}=\pm 15V$ $R_G=15$ $T_J=125$	175	ns
RiseTime	t_r		42	ns
TurnoffDelay/line	t_{off}		46	ns
FallTime	t_f		148	ns
Energy Dissipation During Turnon/line	E_{on}		726	nJ
Energy Dissipation During Turnoff/line	E_{off}		580	nJ
SCData	I_C	$T_P=10\mu s, V_{CE}=15V, T_J=150$, $V_{CE}=90V, V_{CEM} 120V$	280	A

RepetitivePeakReverseVoltage	V_{RRM}	$T_J=25$	120	V
ContinuousDCForwardCurrent	I_F		35	A
RepetitivePeakForwardCurrent	I_{FRM}	$t_p=1ns$	70	A
Rvalue	R_θ	$V_{CE}=0, t_p=10ns, T_J=125$	20	As
		$V_{CE}=0, t_p=10ns, T_J=150$	20	

ForwardVoltage	V_F	$I_F=35A, T_J=25$	195	V
		$I_F=35A, T_J=125$	195	
		$I_F=35A, T_J=150$	190	
RecoveredCharge	Q_r	$I_F=35A$ $V_{CE}=60V$ $-d_f/d=160\mu s$ $T_J=25$	415	μC
PeakReverseRecoveryCurrent	I_{RR}	$T_J=25$	42	A
ReverseRecoveryEnergy	E_{rec}		130	nJ
RecoveredCharge	Q_r		$I_F=35A$ $V_{CE}=60V$ $-d_f/d=160\mu s$	800
PeakReverseRecoveryCurrent	I_{RR}	$T_J=125$	46	A
ReverseRecoveryEnergy	E_{rec}		238	nJ



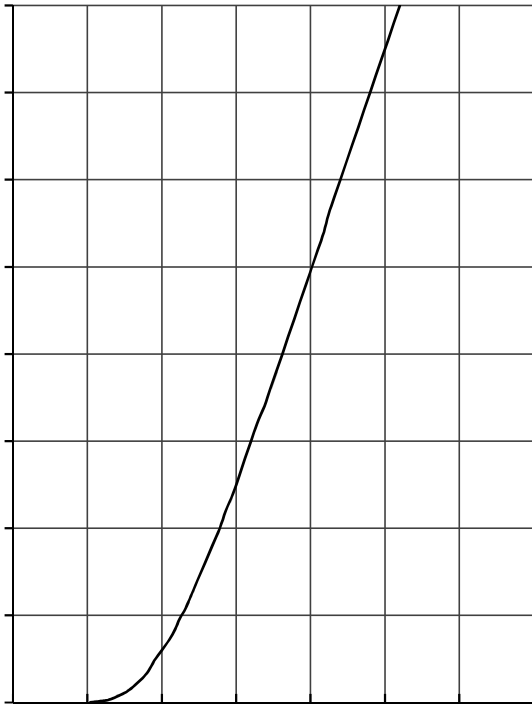
Repetitive Peak Reverse Voltage	V_{RRM}	$T_J=25$	160	V
Average Output Current 50kHz, sine wave	$I_{(A)}$	$T_C=100$	80	A
Minimum RMS Current at Rectifier Output	I_{RSM}	$T_C=100$	120	A
Surge Forward Current	I_{SM}	$V_F=0, t_F=10ms, T_J=25$	1100	A
ft value	f_t	$V_F=0, t_F=10ms, T_J=25$	600	ns

Diode Forward Voltage	V_F	$I_F=50A, T_J=125$		0.98	V
Reverse Current	I_R	$T_J=125, V_R=160V$		20	nA

Rated Resistance	R_Z			50	k
Deviation of R100	RR	$T_C=100, R_{100}=483$	-5	5	%
Power Dissipation	P_Z			200	mW
B value	B_{550}	$R_Z = R_{Z0} \exp[B_{550} (1/T_Z - 1/298.15 K)]$		335	K



Isolation Voltage	V_{sd}	t=1min@50Hz	250			V
Minimum Junction Temperature	T_{junction}				175	
Operating Junction Temperature	T_{jqop}		-40		150	
Storage Temperature	T_{stg}		-40		125	
Storage Inductance (mH)	L_{SC}			6		
Module lead resistance, terminals dip	R_{CH/EE}	T_c=25 °C, per switch		40		
	R_{ML/CC}			30		
Thermal Resistance Junction to Case	R_{JC}	per GB Fin meter			027	KW
		per Dole in meter			050	
		per GB base copper			031	
		per Dole copper			120	
		per Dole redifier			043	
Thermal Resistance Case to Sink	R_{CS}	per GB Fin meter		012		KW
		per Dole in meter		022		
		per GB base copper		014		
		per Dole copper		056		
		per Dole redifier		019		
		per Module		009		
Mating Force Per Clamp	F		30		60	N
Weight of Module	G			300		g





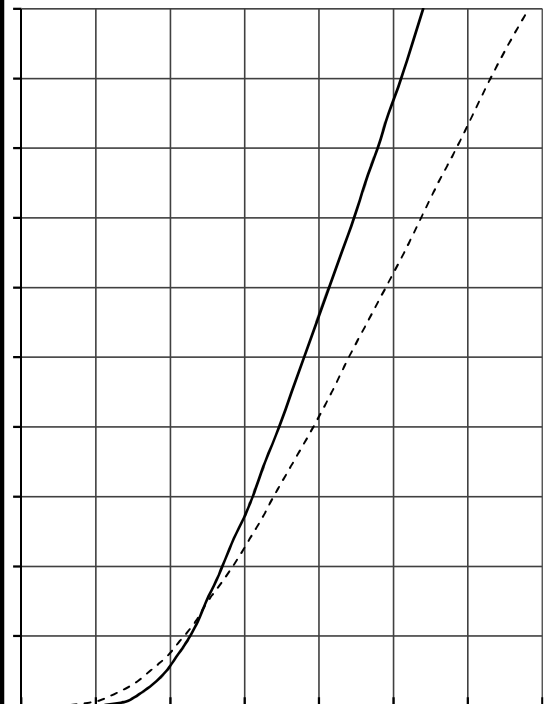
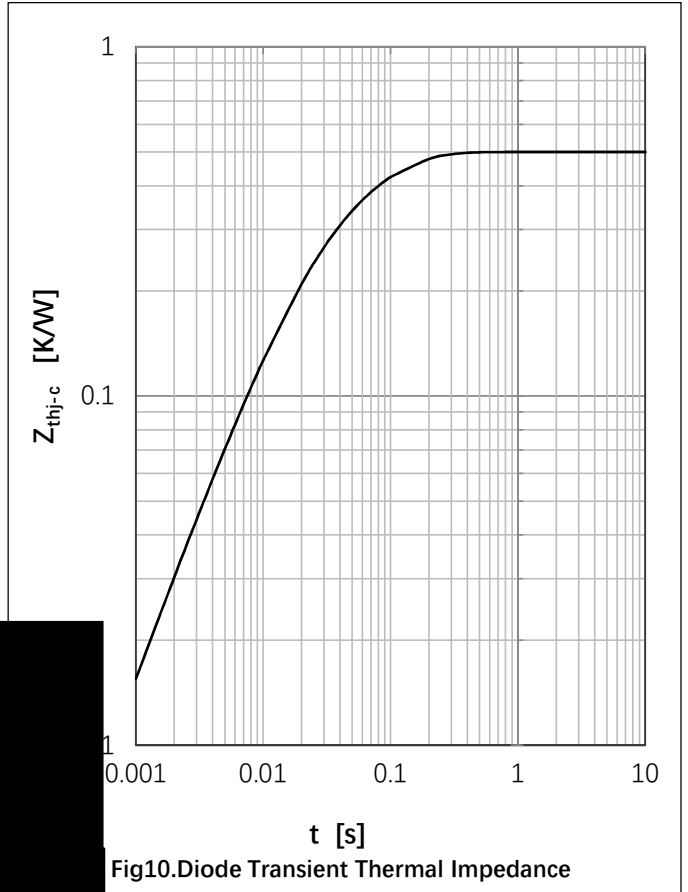
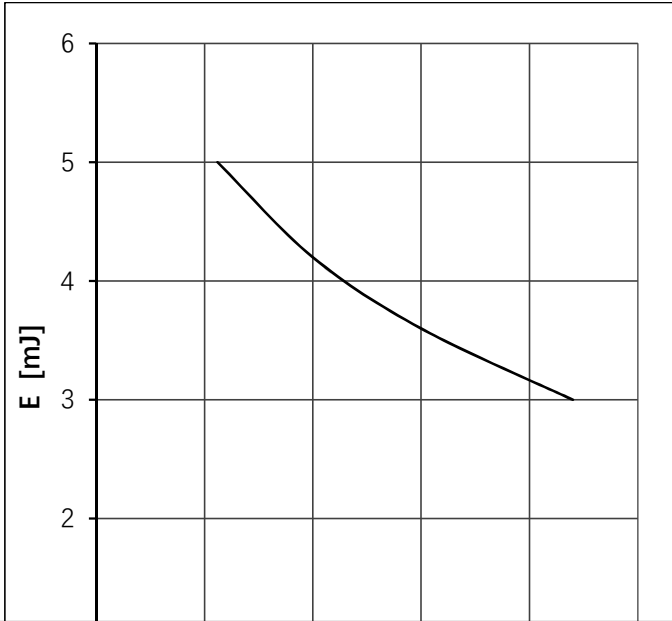


Fig 11. NTC Temperature Characteristic

