Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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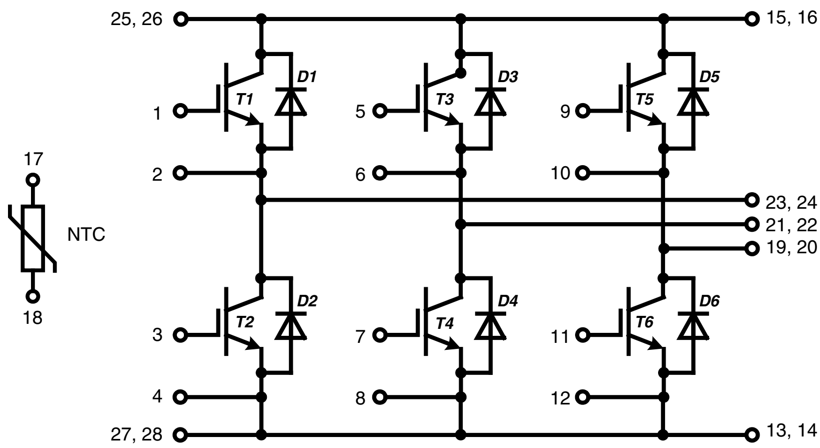
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

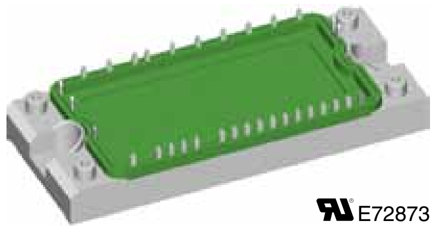
Six-Pack
Trench IGBT

I_{C25} = 110 A
V_{CES} = 1200 V
$V_{CE(sat)\ typ.}$ = 1.7 V

Part name (Marking on product)

MWI 75-12T7T





E72873

Pin configuration see outlines.

Features:
- Trench IGBT technology
- low saturation voltage
- low switching losses
- square RBSOA, no latch up
- high short circuit capability
- positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- ultra fast free wheeling diodes
- solderable pins for PCB mounting
- package with copper base plate

Application:
- AC motor drives
- Solar inverter
- Medical equipment
- Uninterruptible power supply
- Air-conditioning systems
- Welding equipment
- Switched-mode and resonant-mode power supplies

Package:
- "E2-Pack" standard outline
- Insulated copper base plate
- Soldering pins for PCB mounting
- Temperature sense included

IXYS reserves the right to change limits, test conditions and dimensions.

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Output Inverter T1 - T6

Symbol	Definitions	Conditions		min.	typ.	max.	Unit
				Ratings			
V_{CES}	*collector emitter voltage*		T_{VJ} = 25°C			1200	V
V_{GES}	*max. DC gate voltage*	continuous				±20	V
V_{GEM}	*max. transient collector gate voltage*	transient				±30	V
I_{C25}	*collector current*		T_C = 25°C			110	A
I_{C80}			T_C = 80°C			75	A
I_{CM}	*max. pulsed collector current*	t_p = 1 ms	T_C = 80°C			150	A
P_{tot}	*total power dissipation*		T_C = 25°C			355	W
$V_{CE(sat)}$	*collector emitter saturation voltage*	I_C = 75 A; V_{GE} = 15 V	T_{VJ} = 25°C		1.7	2.15	V
		on chip level	T_{VJ} = 125°C		2.0		V
$V_{GE(th)}$	*gate emitter threshold voltage*	I_C = 3 mA; V_{GE} = V_{CE}	T_{VJ} = 25°C	5	5.8	6.5	V
I_{CES}	*collector emitter leakage current*	V_{CE} = V_{CES}; V_{GE} = 0 V	T_{VJ} = 25°C			4	mA
			T_{VJ} = 125°C		tbd		mA
I_{GES}	*gate emitter leakage current*	V_{GE} = ±20 V				400	nA
C_{ies}	*input capacitance*	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz			5350		pF
$Q_{G(on)}$	*total gate charge*	V_{CE} = 600 V; V_{GE} = ±15 V; I_C = 75 A			700		nC
$t_{d(on)}$	*turn-on delay time*	inductive load V_{CE} = 600 V; I_C = 75 A V_{GE} = ±15 V; R_G = 4.7 Ω	T_{VJ} = 125°C		290		ns
t_r	*current rise time*				50		ns
$t_{d(off)}$	*turn-off delay time*				520		ns
t_f	*current fall time*				90		ns
E_{on}	*turn-on energy per pulse*				7		mJ
E_{off}	*turn-off energy per pulse*				9.5		mJ
RBSOA	*reverse bias safe operating area*	V_{GE} = ±15 V; R_G = 4.7 Ω	T_{VJ} = 125°C V_{CEK} = 1150 V			100	A
SCSOA	*short circuit safe operating area*						
t_{SC}	*short circuit duration*	V_{CE} = 900 V; V_{GE} = ±15 V;	T_{VJ} = 125°C			10	µs
I_{SC}	*short circuit current*	R_G = 4.7 Ω; non-repetitive			300		A
R_{thJC}	*thermal resistance junction to case*	(per IGBT)				0.35	K/W

Output Inverter D1 - D6

Symbol	Definitions	Conditions		min.	typ.	max.	Unit
				Ratings			
V_{RRM}	*max. repetitve reverse voltage*		T_{VJ} = 25°C			1200	V
I_{F25}	*forward current*		T_C = 25°C			135	A
I_{F80}			T_C = 80°C			90	A
V_F	*forward voltage*	I_F = 100 A; V_{GE} = 0 V	T_{VJ} = 25°C		1.95	2.2	V
			T_{VJ} = 125°C		1.95		V
Q_{rr}	*reverse recovery charge*	V_R = 600 V di_F/dt = -1600 A/µs I_F = 100 A; V_{GE} = 0 V	T_{VJ} = 125°C		12.5		µC
I_{RM}	*max. reverse recovery current*				100		A
t_{rr}	*reverse recovery time*				350		ns
E_{rec}	*reverse recovery energy*				4		mJ
R_{thJC}	*thermal resistance junction to case*	(per diode)				0.4	K/W

IXYS reserves the right to change limits, test conditions and dimensions.

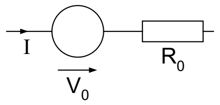
Temperature Sensor NTC

Symbol	Definitions	Conditions		min.	typ.	max.	Unit
					Ratings		
R_{25}	*resistance*		T_C = 25°C	4.75	5.0	5.25	kΩ
$B_{25/50}$					3375		K

Module

Symbol	Definitions	Conditions	min.	typ.	max.	Unit
				Ratings		
T_{VJ}	*operating temperature*		-40		125	°C
T_{VJM}	*max. virtual junction temperature*				150	°C
T_{stg}	*storage temperature*		-40		125	°C
V_{ISOL}	*isolation voltage*	$I_{ISOL} \leq 1$ mA; 50/60 Hz			2500	V~
CTI	*comparative tracking index*				200	
M_d	*mounting torque (M5)*		2.7		3.3	Nm
d_S	*creep distance on surface*		6			mm
d_A	*strike distance through air*		6			mm
$R_{pin-chip}$	*resistance pin to chip*			2.5		mΩ
R_{thCH}	*thermal resistance case to heatsink*	with heatsink compound		0.02		K/W
Weight				180		g

Equivalent Circuits for Simulation



Symbol	Definitions	Conditions		min.	typ.	max.	Unit
					Ratings		
V_0	*IGBT*	T1 - T6	T_{VJ} = 125°C		1.0		V
R_0					13.3		mΩ
V_0	*Diode*	D1 - D6	T_{VJ} = 150°C		1.09		V
R_0					9.1		mΩ

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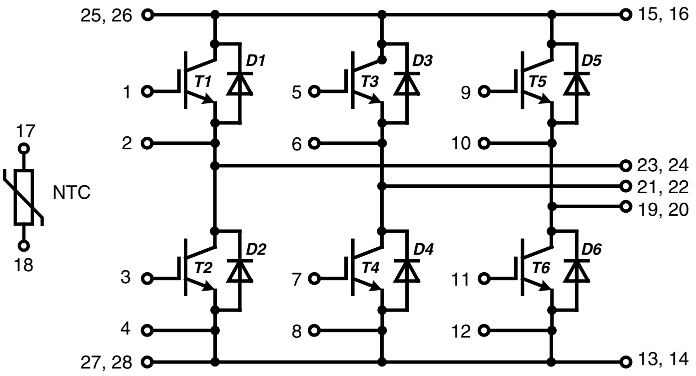
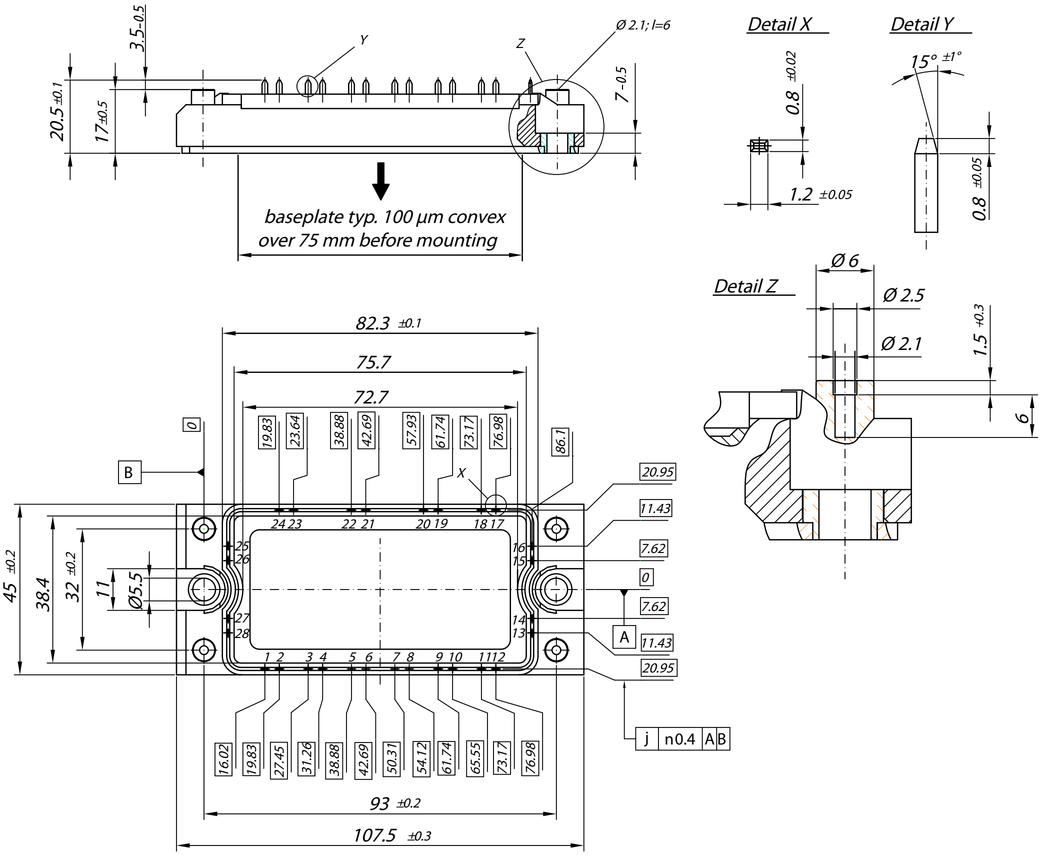
Circuit Diagram

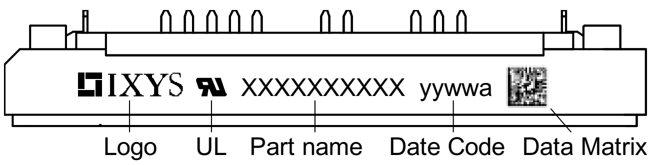


Outline Drawing

Dimensions in mm (1 mm = 0.0394")



Product Marking



Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	MWI 75-12T7T	MWI75-12T7T	Box	6	501979

IXYS reserves the right to change limits, test conditions and dimensions.

20100910e

Inverter T1 - T6

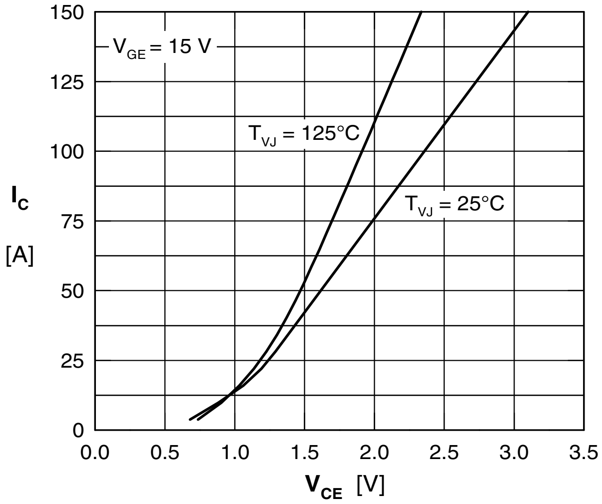


Fig. 1 Typ. output characteristic

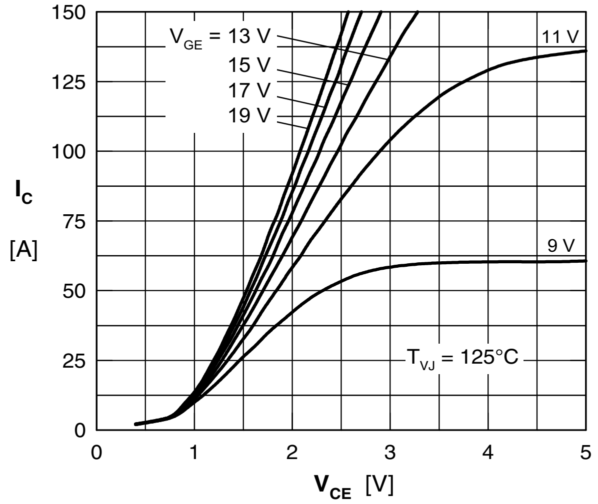


Fig. 2 Typ. output characteristic

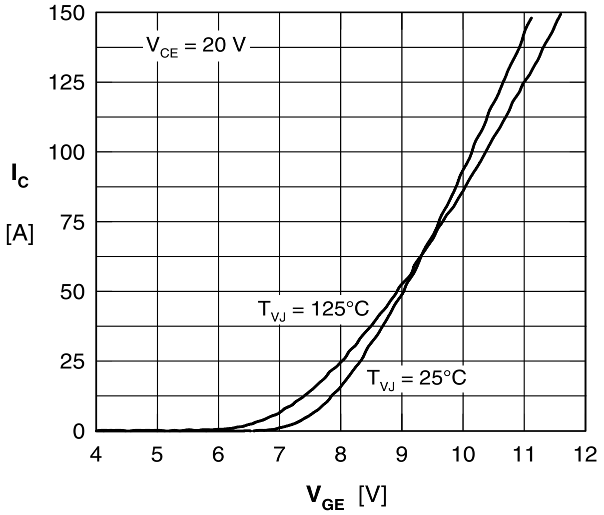


Fig. 3 Typ. transfer characteristic

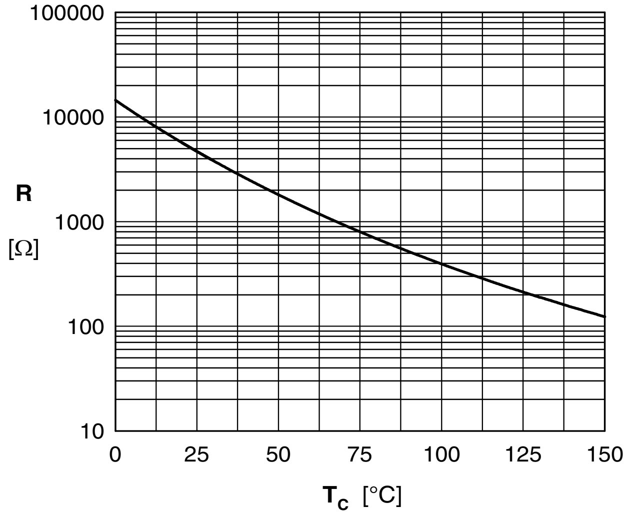


Fig. 4 Typ. NTC resistance versus temperature

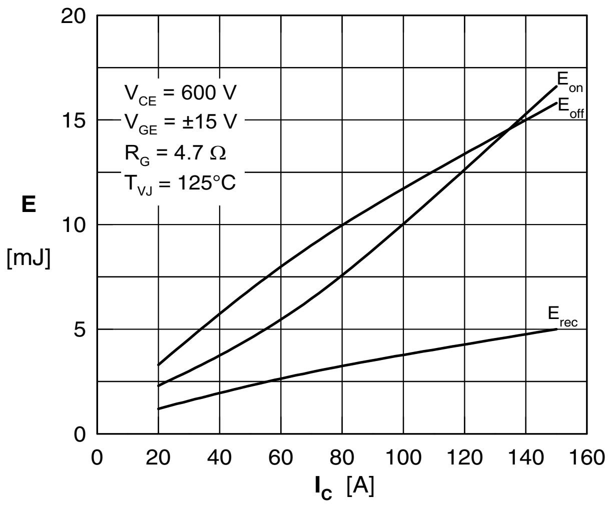


Fig. 5 Typ.switching losses versus collector current impedance

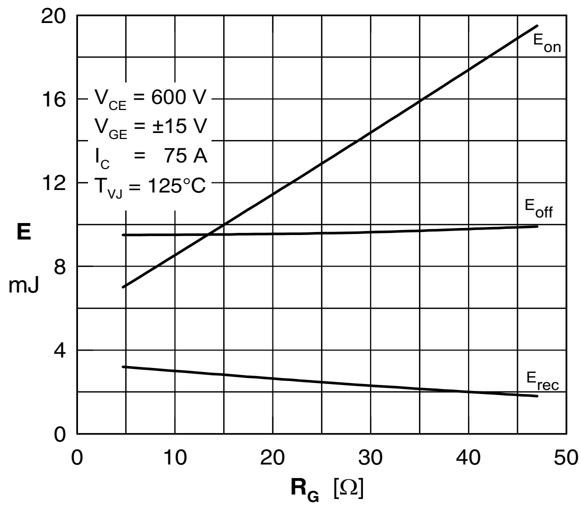


Fig. 6 Typ.switching losses vs. gate resistance

Inverter D1 - D6

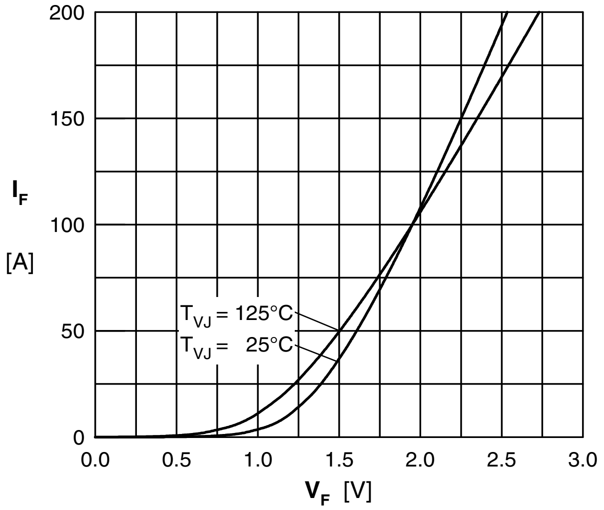


Fig. 7 Typ. Forward current versus V_F

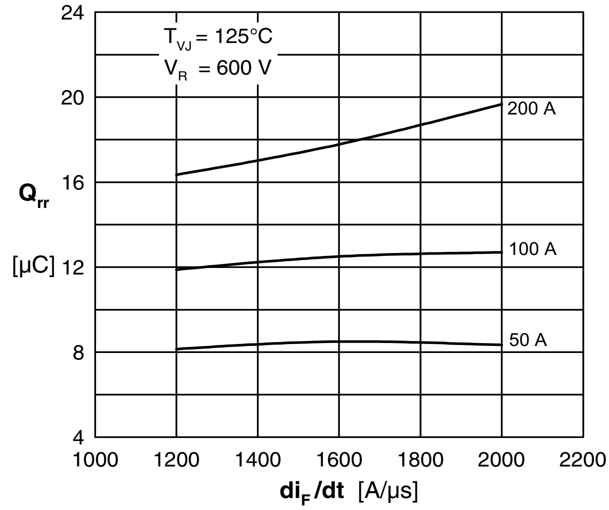


Fig. 8 Typ. reverse recov.charge Q_{rr} vs. di/dt

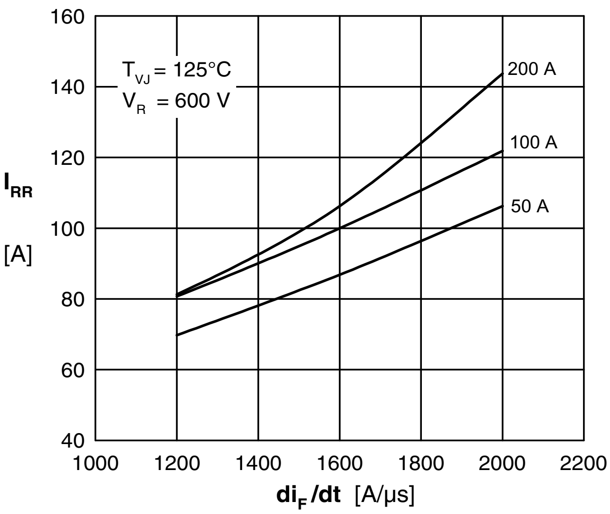


Fig. 9 Typ. peak reverse current I_{RM} vs. di/dt

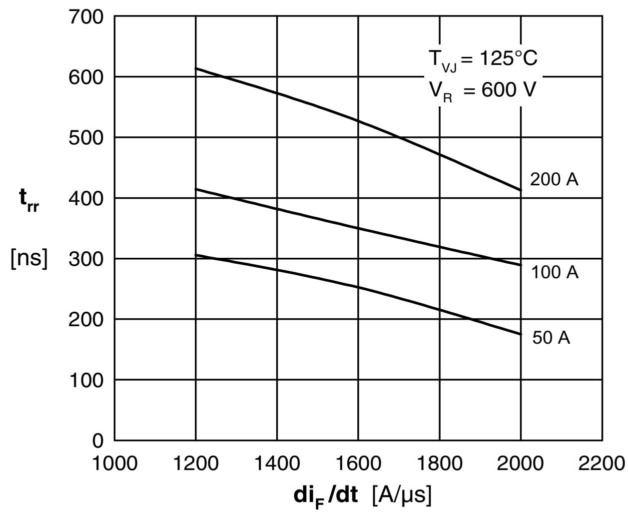


Fig. 10 Typ. recovery time t_{rr} versus di/dt

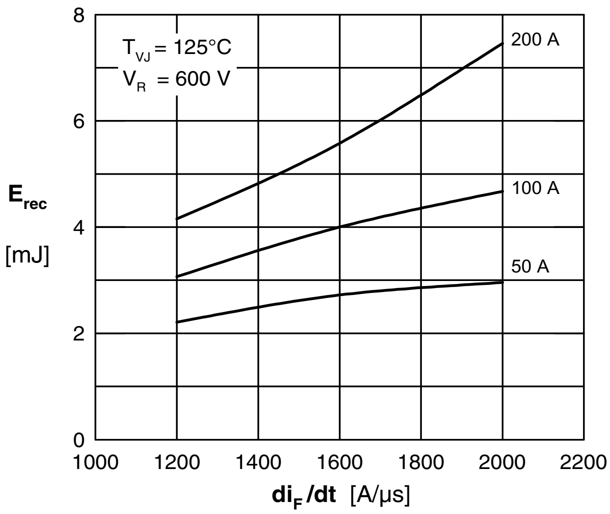


Fig. 11 Typ. recovery energy E_{rec} versus di/dt

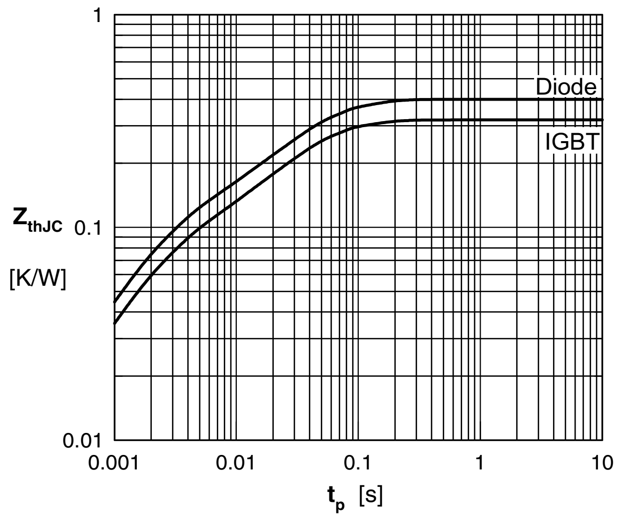


Fig. 12 Typ. transient thermal impedance