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!

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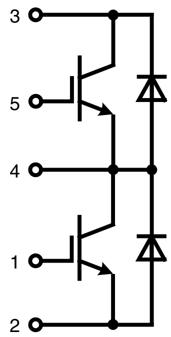
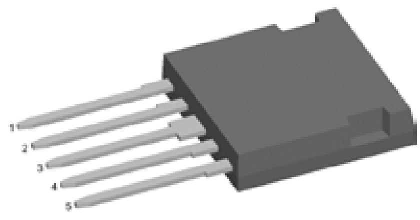
IGBT phaseleg

in ISOPLUS i4-PAC™

I_{C25} = 30 A
V_{CES} = 600 V
$V_{CE(sat)\ typ.}$ = 1.9 V





E72873

IGBT			
Symbol	**Conditions**	**Maximum Ratings**	
V_{CES}	T_{VJ} = 25°C to 150°C	600	V
V_{GES}		± 20	V
I_{C25} I_{C90}	T_C = 25°C T_C = 90°C	30 18	A A
I_{CM} V_{CEK}	V_{GE} = ±15 V; R_G = 47 Ω; T_{VJ} = 125°C **RBSOA** Clamped inductive load; L = 100 µH	40 V_{CES}	A
t_{SC} **(SCSOA)**	V_{CE} = V_{CES}; V_{GE} = ±15 V; R_G = 47 Ω T_{VJ} = 125°C; non-repetitive	10	µs
P_{tot}	T_C = 25°C	100	W

Symbol	**Conditions**		**Characteristic Values** (T_{VJ} = 25°C, unless otherwise specified)			
			min.	**typ.**	**max.**	
$V_{CE(sat)}$	I_C = 20 A; V_{GE} = 15 V	T_{VJ} = 25°C T_{VJ} = 125°C		1.9 2.2	2.4	V V
$V_{GE(th)}$	I_C = 0.5 mA; V_{GE} = V_{CE}		4.5		6.5	V
I_{CES}	V_{CE} = V_{CES}; V_{GE} = 0 V	T_{VJ} = 25°C T_{VJ} = 125°C		 0.6	0.6	mA mA
I_{GES}	V_{CE} = 0 V; V_{GE} = ± 20 V				200	nA
$t_{d(on)}$ t_r $t_{d(off)}$ t_f E_{on} E_{off}	Inductive load V_{CE} = 300 V; I_C = 20 A V_{GE} = ±15 V; R_G = 47 Ω	T_{VJ} = 125°C		50 55 200 30 0.75 0.6		ns ns ns ns mJ mJ
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz			1.1		nF
Q_{Gon}	V_{CE} = 300 V; V_{GE} = 15 V; I_C = 20 A			65		nC
R_{thJC} R_{thJH}	 with heatsink compound			 2.5	1.25	K/W K/W

Features

- NPT IGBT technology
  - low saturation voltage
  - positive temperature coefficient for easy paralleling
  - fast switching
- HiPerFRED™ diode
  - optimized fast and soft reverse recovery
  - low operating forward voltage
  - low leakage current
- ISOPLUS i4-PAC™ package
  - isolated back surface
  - low coupling capacity between pins and heatsink
  - enlarged creepage towards heatsink
  - application friendly pinout
  - low inductive current path
  - high reliability
  - industry standard outline
  - UL registered E 72873

Applications

- single phaseleg
  - buck-boost chopper
- H bridge
  - power supplies
  - induction heating
  - four quadrant DC drives
  - controlled rectifier
- three phase bridge
  - AC drives
  - controlled rectifier

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

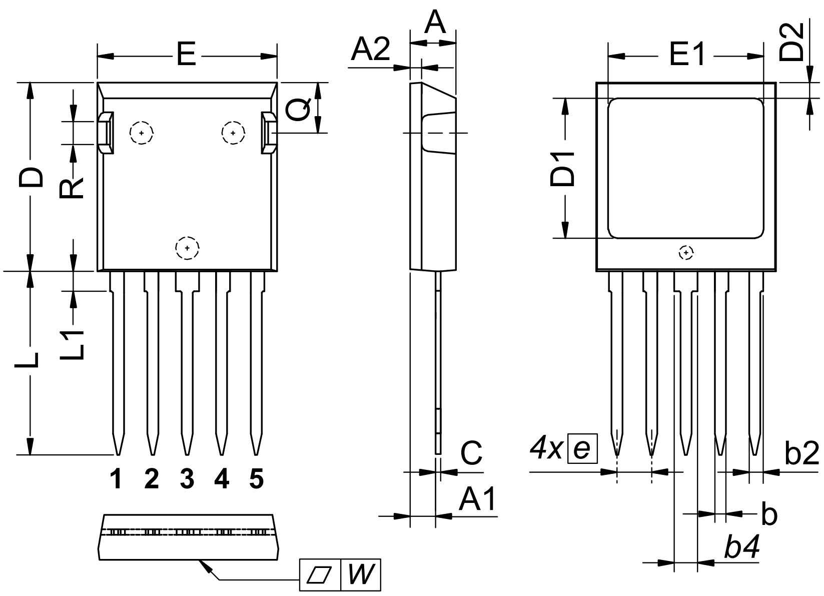
20110119a

Diode			
Symbol	**Conditions**	Maximum Ratings	
V_{RRM}	T_{VJ} = 25°C to 150°C	600	V
I_{F25}	T_C = 25°C	30	A
I_{F90}	T_C = 90°C	15	A

Symbol	**Conditions**		**Characteristic Values**			
			min.	**typ.**	**max.**	
V_F	I_F = 20 A	T_{VJ} = 25°C		2.3	2.7	V
		T_{VJ} = 125°C		1.6		V
I_{RM}	I_F = 15 A; di_F/dt = -400 A/µs;			7		A
t_{rr}	V_R = 300 V; V_{GE} = 0 V;	T_{VJ} = 125°C		50		ns
R_{thJC}	(per diode)				2.3	K/W
R_{thJH}	with heatsink compound			4.6		K/W

Component			
Symbol	**Conditions**	**Maximum Ratings**	
T_{VJ}	operating	-55...+150	°C
T_{stg}		-55...+125	°C
V_{ISOL}	$I_{ISOL} \leq$ 1 mA; 50/60 Hz; t = 1 s	2500	V~
F_C	Mounting force with clip	20...120	Nm

Symbol	**Conditions**	**Characteristic Values**			
		min.	**typ.**	**max.**	
C_P	coupling capacity between shorted pins and mounting tab in the case		40		pF
d_S, d_A	pin - pin	1.7			mm
d_S, d_A	pin - backside metal	5.5			mm
Weight			6		g



DIM.	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
b4	2.54	2.79	0.100	0.110
C	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	3.81 BSC		0.15 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	—	0.10	—	0.004

Die konvexe Form des Substrates ist typ. < 0.05 mm über der Kunststoffoberfläche der Bauteilunterseite

The convex bow of substrate is typ. < 0.05 mm over plastic surface level ofdevice bottom side

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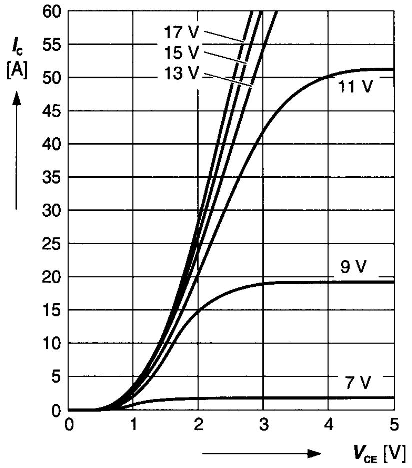
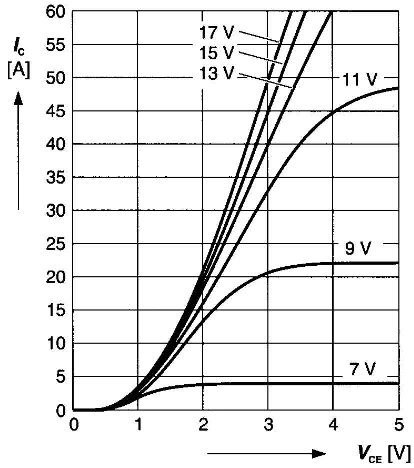
20110119a

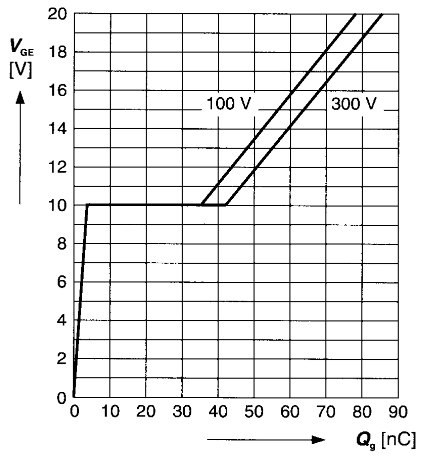
Typ. output characteristics
$I_C = f(V_{CE})$
parameter: t_p = 250 µs; T_j = 25 °C



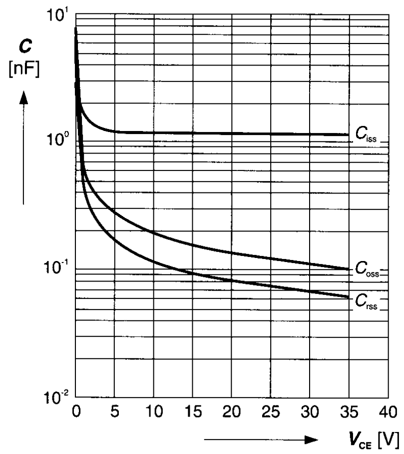
Typ. output characteristics
$I_C = f(V_{CE})$
parameter: t_p = 250 µs; T_j = 125 °C



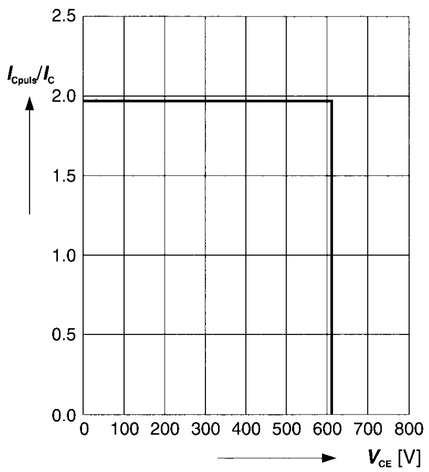
Typ. gate charge
$V_{GE} = f(Q_g)$
parameter: $I_{C\,puls}$ = 20 A



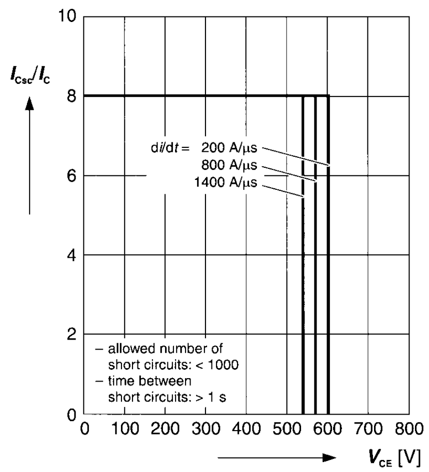
Typ. capacitances
$C = f(V_{CE})$
parameter: V_{GE} = 0 V ; f = 1 MHz



Reverse biased safe operating area
$I_{C\,puls} = f(V_{CE})$, T_j = 150 °C
parameter: V_{GE} = 15 V



Short circuit safe operating area
$I_{Csc} = f(V_{CE})$, T_j = 150 °C
parameter: V_{GE} = ± 15 V ; t_{sc} ≤ 10 µs; L < 50 nH



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

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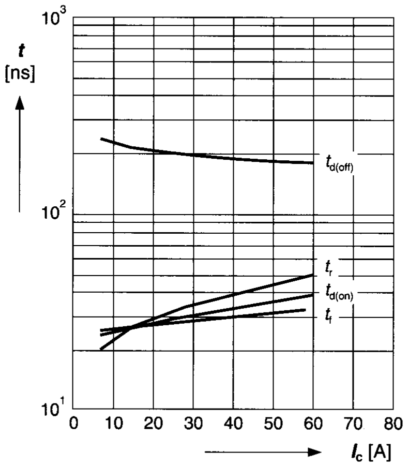
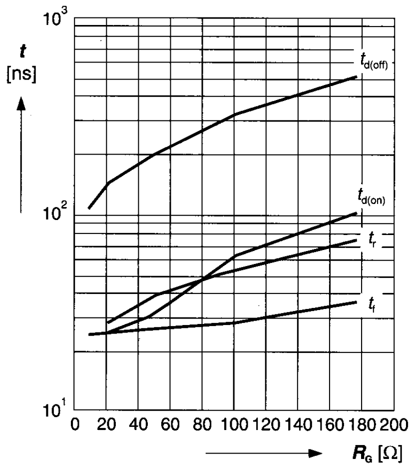
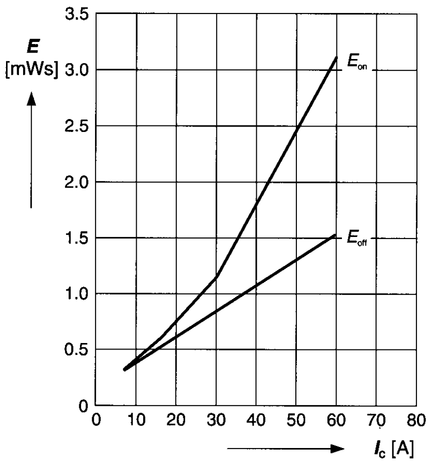
Typ. switching time
$t = f(I_C)$, inductive load, $T_j = 125$ °C
parameter: $V_{CE} = 300$ V; $V_{GE} = \pm 15$ V; $R_G = 33\ \Omega$



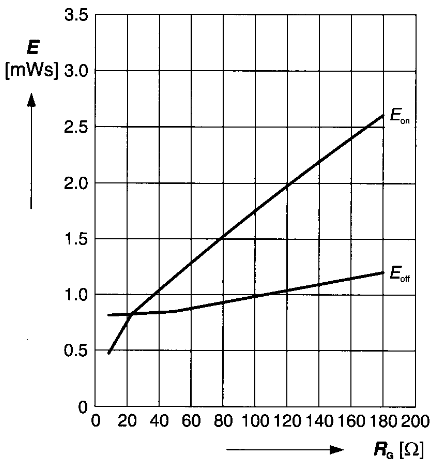
Typ. switching time
$t = f(R_G)$, inductive load, $T_j = 125$ °C
parameter: $V_{CE} = 300$ V; $V_{GE} = \pm 15$ V; $I_C = 30$ A

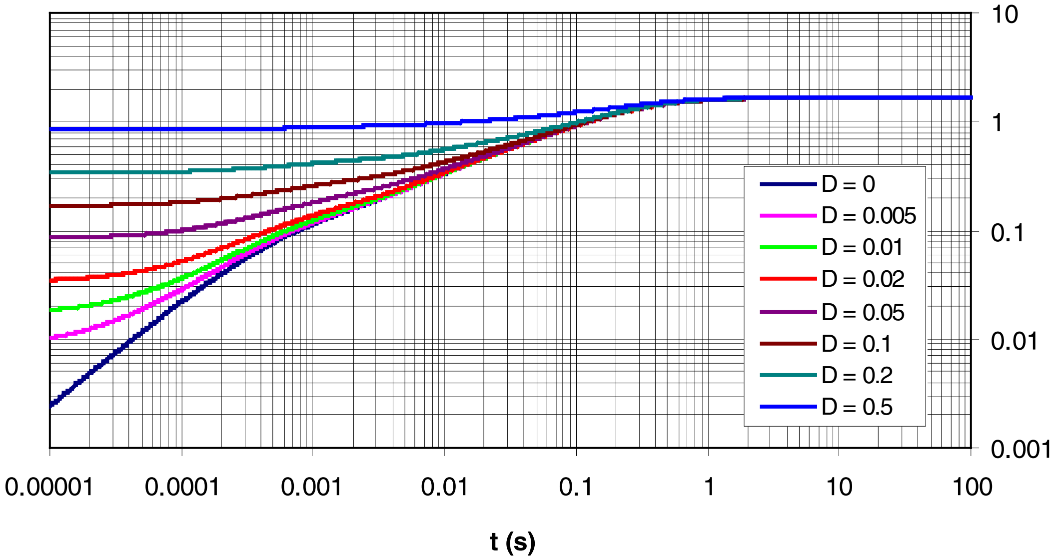


Typ. switching losses
$E = f(I_C)$, inductive load, $T_j = 125$ °C
parameter: $V_{CE} = 300$ V; $V_{GE} = \pm 15$ V; $R_G = 33\ \Omega$



Typ. switching losses
$E = f(R_G)$, inductive load, $T_j = 125$ °C
parameter: $V_{CE} = 300$ V; $V_{GE} = \pm 15$ V; $I_C = 30$ A





IGBT
Z_{thJH}[K/W]

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

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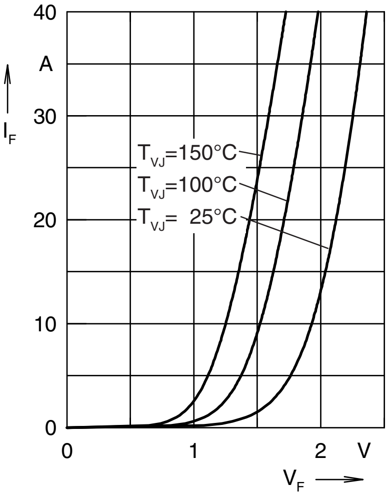
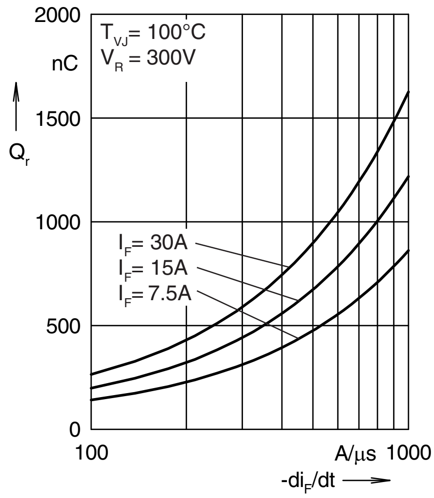
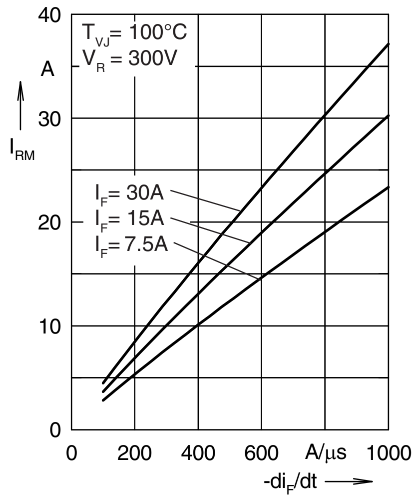
Diode



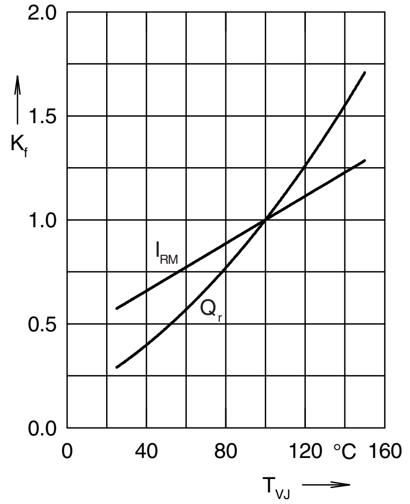
Forward current I_F versus V_F



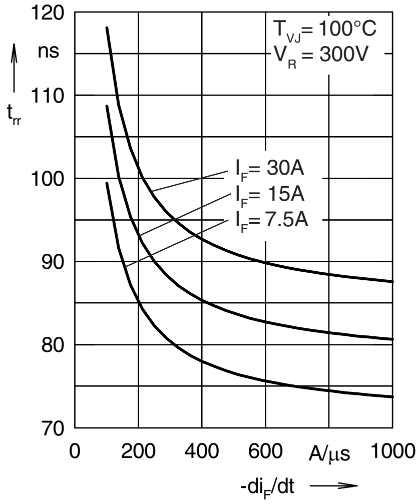
Reverse recovery charge Q_r versus $-di_F/dt$



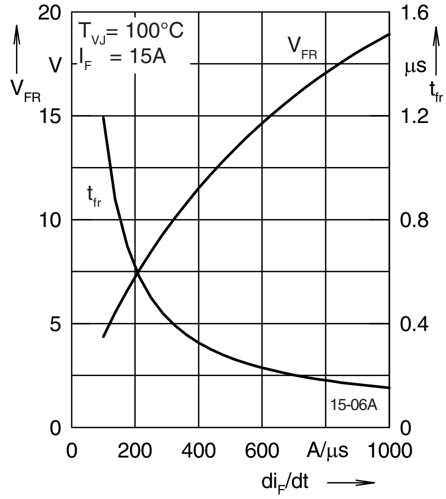
Peak reverse current I_{RM} versus $-di_F/dt$



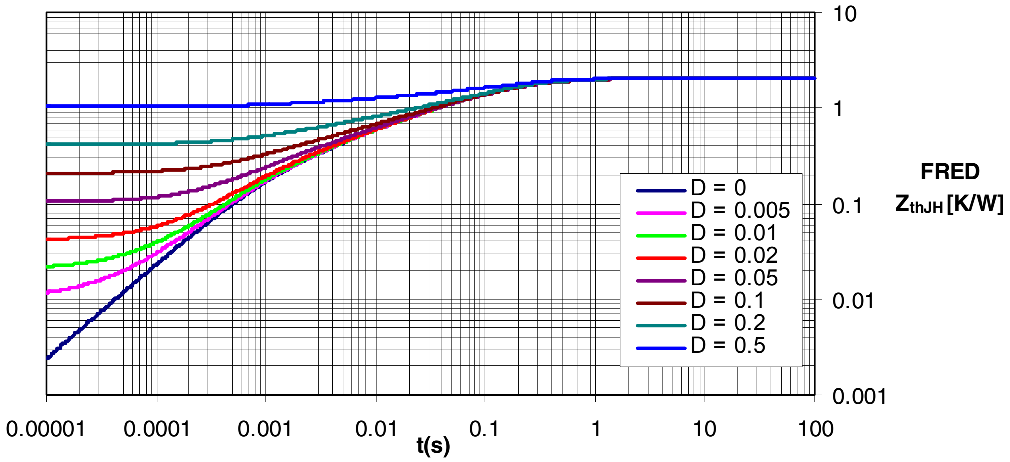
Dynamic parameters Q_r, I_{RM} versus T_{VJ}



Recovery time t_{rr} versus $-di_F/dt$



Peak forward voltage V_{FR} and t_{fr} versus di_F/dt



Transient thermal resistance junction to heatsink

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