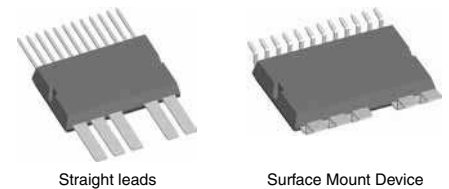
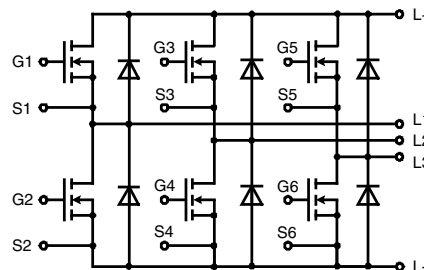


Three phase full Bridge with Trench MOSFETs in DCB isolated high current package

$$V_{DSS} = 75 \text{ V}$$

$$I_{D25} = 110 \text{ A}$$

$$R_{DSon \text{ typ.}} = 4.0 \text{ m}\Omega$$



MOSFETs			
Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	75	V
V_{GS}		± 20	V
I_{D25}	$T_C = 25^{\circ}\text{C}$	110	A
I_{D90}	$T_C = 90^{\circ}\text{C}$	85	A
I_{F25}	$T_C = 25^{\circ}\text{C (diode)}$	110	A
I_{F90}	$T_C = 90^{\circ}\text{C (diode)}$	80	A

Applications

AC drives

- in automobiles
 - electric power steering
 - starter generator
- in industrial vehicles
 - propulsion drives
 - fork lift drives
- in battery supplied equipment

Features

- MOSFETs in trench technology:
 - low R_{DSon}
 - optimized intrinsic reverse diode
- package:
 - high level of integration
 - high current capability 300 A max.
 - aux. terminals for MOSFET control
 - terminals for soldering or welding connections
 - isolated DCB ceramic base plate with optimized heat transfer
- Space and weight savings

Package options

- 2 lead forms available
 - straight leads (SL)
 - SMD lead version (SMD)

Symbol	Conditions	Characteristic Values			
		$(T_{VJ} = 25^{\circ}\text{C, unless otherwise specified})$			
		min.	typ.	max.	
R_{DSon}	on chip level at $V_{GS} = 10 \text{ V}; I_D = 60 \text{ A}$				
	$T_{VJ} = 25^{\circ}\text{C}$		4.0	4.9	m Ω
	$T_{VJ} = 125^{\circ}\text{C}$		7.2	8.4	m Ω
$V_{GS(th)}$	$V_{DS} = 20 \text{ V}; I_D = 1 \text{ mA}$	2		4	V
I_{DSS}	$V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}$			1	μA
	$T_{VJ} = 25^{\circ}\text{C}$		0.1		mA
	$T_{VJ} = 125^{\circ}\text{C}$				
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			0.2	μA
Q_g	$V_{GS} = 10 \text{ V}; V_{DS} = 36 \text{ V}; I_D = 25 \text{ A}$		115		nC
Q_{gs}			30		nC
Q_{gd}			30		nC
$t_{d(on)}$	$V_{GS} = 10 \text{ V}; V_{DS} = 30 \text{ V}$ $I_D = 80 \text{ A}; R_G = 39 \Omega$ inductive load $T_{VJ} = 125^{\circ}\text{C}$		130		ns
t_r			100		ns
$t_{d(off)}$			500		ns
t_f			100		ns
E_{on}			0.20		mJ
E_{off}			0.50		mJ
E_{recoff}			0.01		mJ
R_{thJC}	with heat transfer paste (IXYS test setup)			1.0	K/W
R_{thJH}			1.3	1.6	K/W

Source-Drain Diode

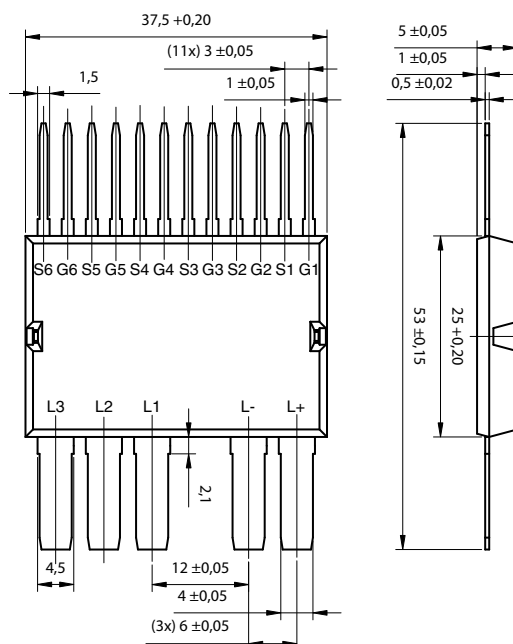
Symbol	Conditions	Characteristic Values			
		(T _J = 25°C, unless otherwise specified)			
		min.	typ.	max.	
V _{SD}	(diode) I _F = 80 A; V _{GS} = 0 V		0.9	1.2	V
t _{rr}	I _F = 80 A; -di _F /dt = 800 A/μs		55		ns
Q _{RM}	V _R = 30 V; T _J = 125°C		0.9		μC
I _{RM}			30		A

Component

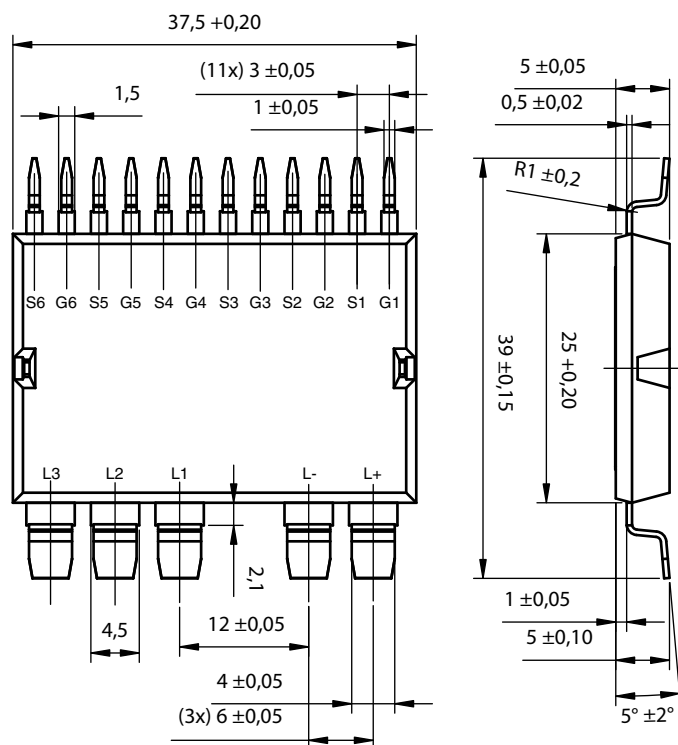
Symbol	Conditions	Maximum Ratings		
I _{RMS}	per pin in main current paths (P+, N-, L1, L2, L3) may be additionally limited by external connections		300	A
T _{VJ}			-55...+175	°C
T _{stg}			-55...+125	°C
V _{ISOL}	I _{ISOL} ≤ 1 mA, 50/60 Hz, f = 1 minute		1000	V~
F _C	mounting force with clip		50 - 250	N

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
R _{pin to chip}	with heatsink compound		0.6		mΩ
C _P	coupling capacity between shorted pins and mounting tab in the case		160		pF
Weight	typ.		25		g

Straight Leads GWM 120-0075X1-SL



Surface Mount Device GWM 120-0075X1-SMD



Leads	Ordering	Part Name & Packing Unit Marking	Part Marking	Delivering Mode	Base Qty.	Ordering Code
Straight	Standard	GWM 120-0075X1 - SL	GWM 120-0075X1	Blister	28	505 960
SMD	Standard	GWM 120-0075X1 - SMD	GWM 120-0075X1	Blister	28	505 581

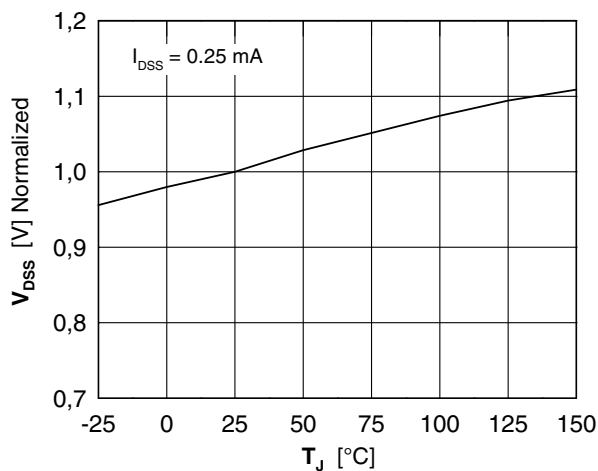


Fig. 1 Drain source breakdown voltage V_{DS} vs. junction temperature T_J

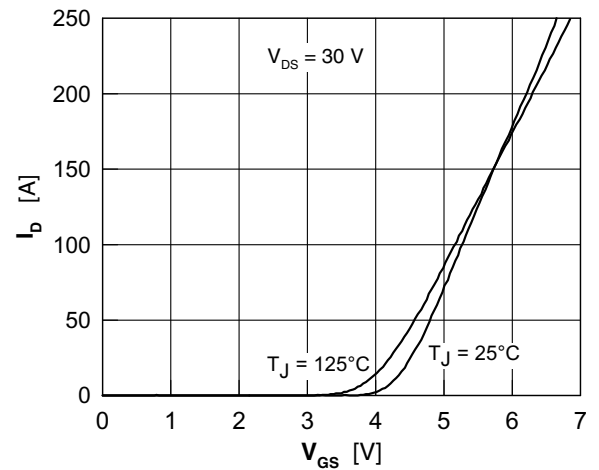


Fig. 2 Typical transfer characteristic

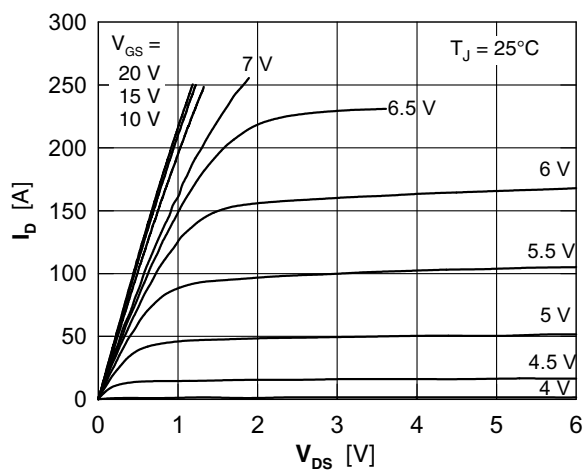


Fig. 3 Typical output characteristic

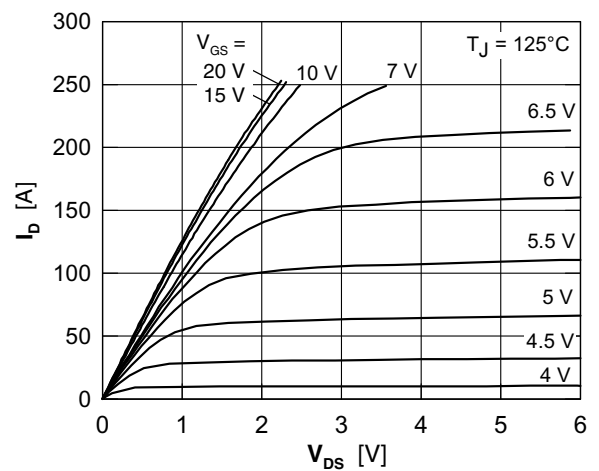


Fig. 4 Typical output characteristic

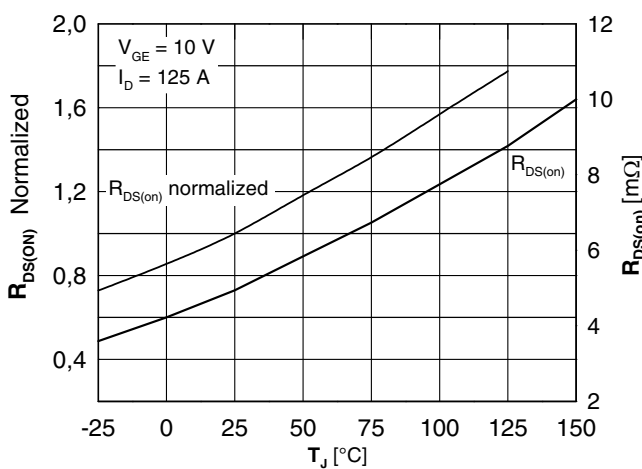


Fig. 5 Drain source on-state resistance $R_{DS(on)}$ versus junction temperature T_J

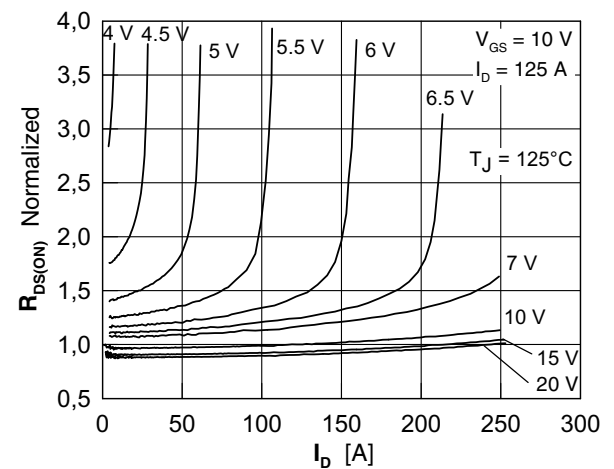


Fig. 6 Drain source on-state resistance $R_{DS(on)}$ versus I_D

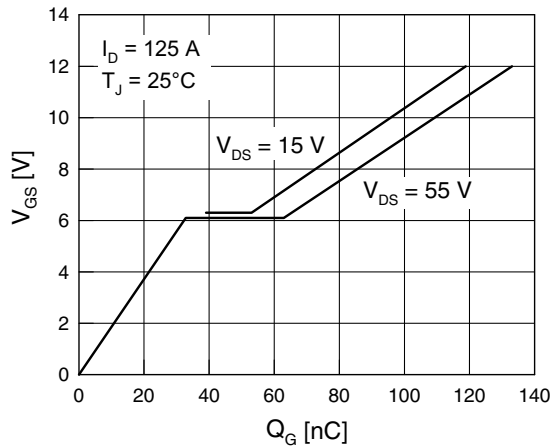


Fig. 7 Gate charge characteristic

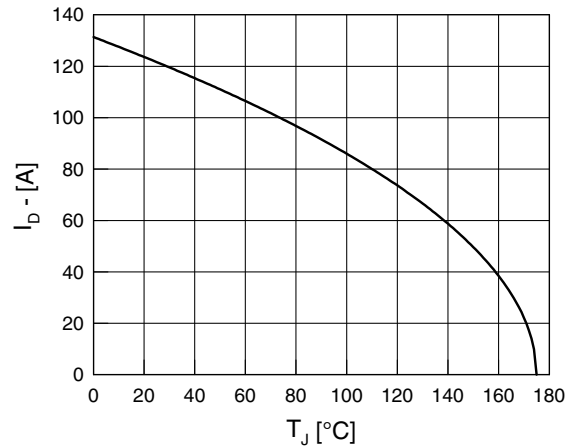


Fig. 8 Drain current I_D vs. case temperature T_J

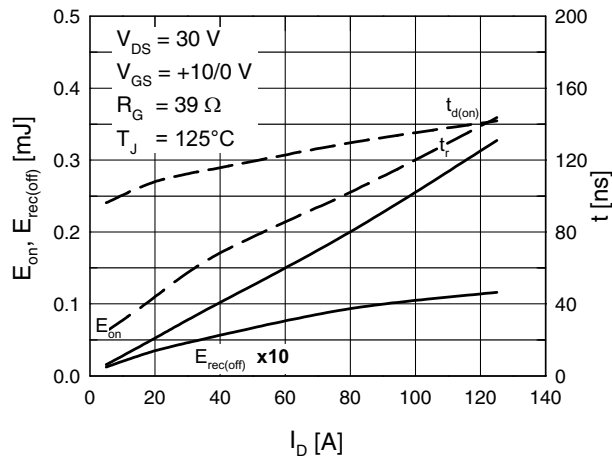


Fig. 9 Typ. turn-on energy & switching times vs. collector current, inductive switching

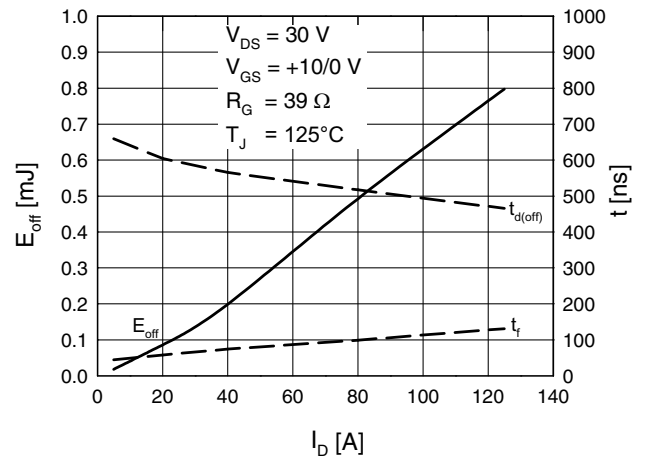


Fig. 10 Typ. turn-off energy & switching times vs. collector current, inductive switching

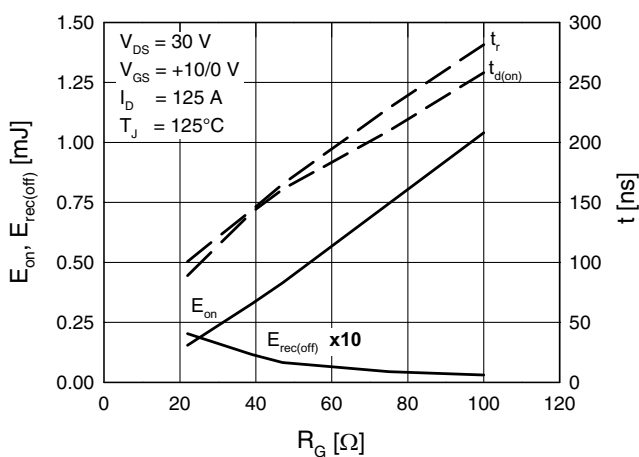


Fig. 11 Typ. turn-on energy & switching times vs. gate resistor, inductive switching

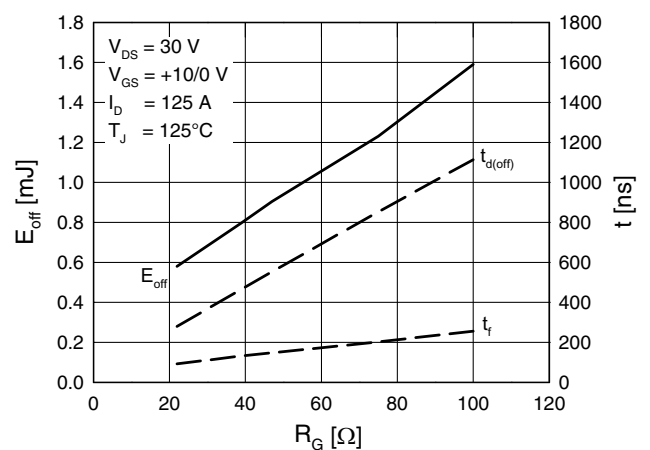


Fig. 12 Typ. turn-off energy & switching times vs. gate resistor, inductive switching

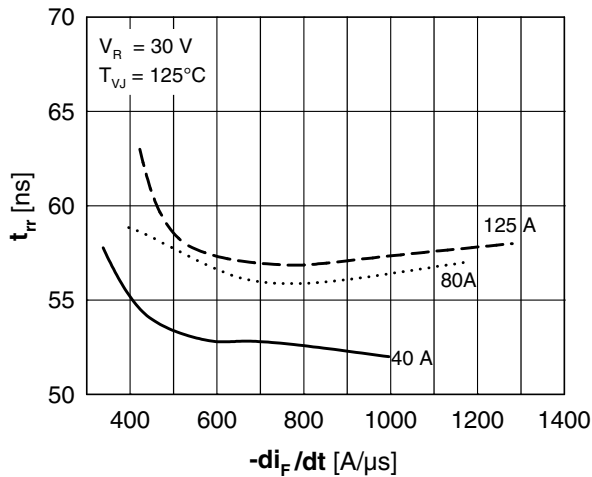


Fig. 13 Reverse recovery time t_{rr} of the body diode vs. di/dt

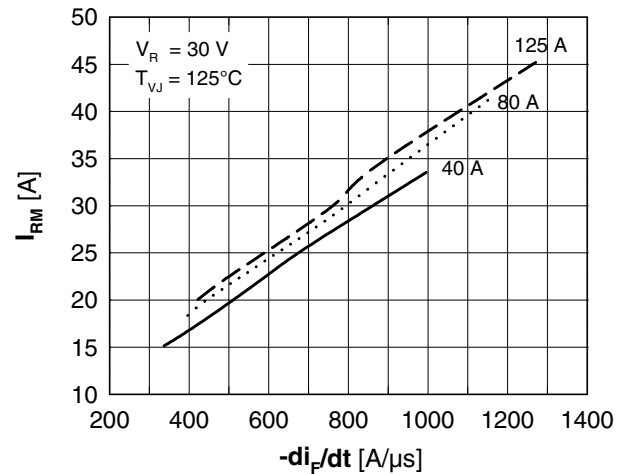


Fig. 14 Reverse recovery current I_{RM} of the body diode vs. di/dt

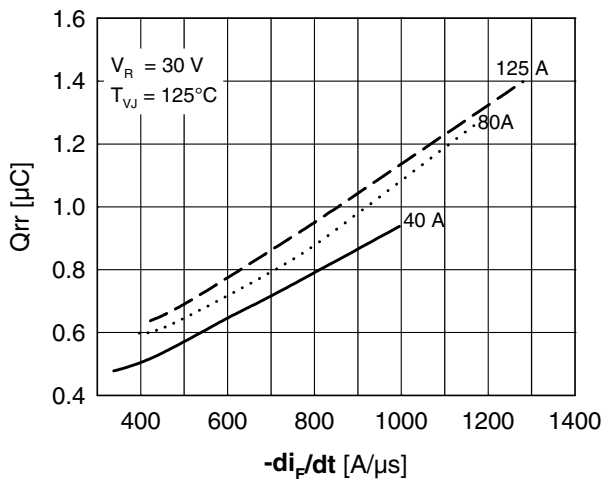


Fig. 15 Reverse recovery charge Q_{rr} of the body diode vs. di/dt

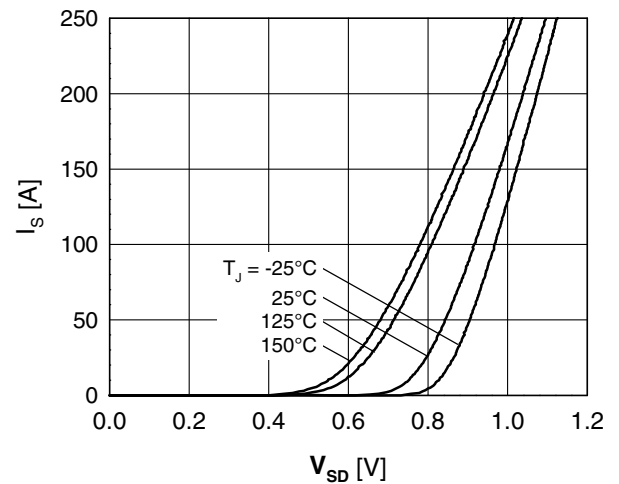


Fig. 16 Source current I_S vs. source drain voltage V_{SD} (body diode)

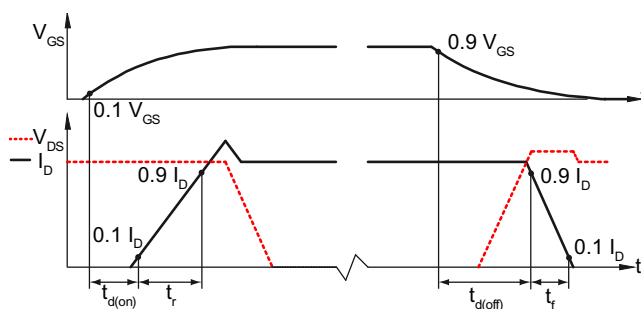


Fig. 17 Definition of switching times

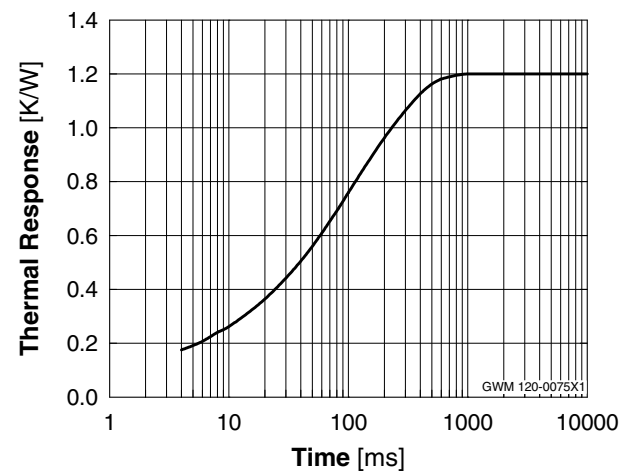


Fig. 18 Typ. therm. impedance junction to heatsink Z_{thJC}