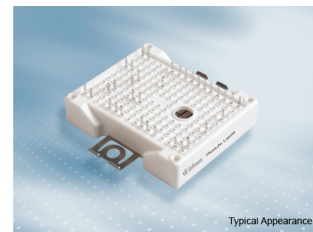


Preliminary datasheet

EasyPACK™ module with CoolSiC™ Trench MOSFET and PressFIT / NTC

Features

- Electrical features
 - $V_{DS} = 1200\text{ V}$
 - $I_{DN} = 100\text{ A}$ / $I_{DRM} = 200\text{ A}$
 - Increased DC-link voltage
 - High current density
 - Low switching losses
- Mechanical features
 - Rugged mounting due to integrated mounting clamps
 - PressFIT contact technology
 - Integrated NTC temperature sensor



Potential applications

- Three-level applications
- High-frequency switching application
- Solar applications

Product validation

- Qualified for industrial applications according to the relevant tests of IEC 60747, 60749 and 60068

Description

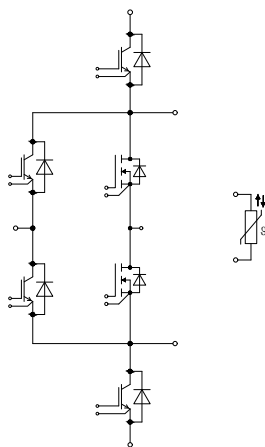


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1 Package

Table 1 Insulation coordination

Parameter	Symbol	Note or test condition	Values	Unit
Isolation test voltage	V_{ISOL}	RMS, $f = 50 \text{ Hz}$, $t = 1 \text{ min}$	3.0	kV
Internal isolation		basic insulation (class 1, IEC 61140)	Al_2O_3	
Creepage distance	d_{Creep}	terminal to heatsink	11.5	mm
Creepage distance	d_{Creep}	terminal to terminal	6.3	mm
Clearance	d_{Clear}	terminal to heatsink	10.0	mm
Clearance	d_{Clear}	terminal to terminal	5.0	mm
Comparative tracking index	CTI		> 200	
Relative thermal index (electrical)	RTI	housing	140	°C

Table 2 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Stray inductance module	L_{SCE}			15		nH
Storage temperature	T_{stg}		-40		125	°C
Mounting force per clamp	F		40		80	N
Weight	G			39		g

Note: The current under continuous operation is limited to 25 A rms per connector pin.

2 MOSFET

Table 3 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Drain-source voltage	V_{DSS}		$T_{vj} = 25 \text{ °C}$	1200	V
Implemented drain current	I_{DN}			100	A
Continuous DC drain current	I_{DDC}	$T_{vj} = 175 \text{ °C}$, $V_{GS} = 15 \text{ V}$	$T_H = 65 \text{ °C}$	85	A
Repetitive peak drain current	I_{DRM}	verified by design, t_p limited by T_{vjmax}		200	A
Gate-source voltage, max. transient voltage	V_{GS}	$D < 0.01$		-10/23	V

Table 4 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Drain-source on-resistance	$R_{DS(on)}$	$I_D = 100\text{ A}$	$V_{GS} = 15\text{ V}, T_{vj} = 25\text{ °C}$		11.3		mΩ
			$V_{GS} = 15\text{ V}, T_{vj} = 125\text{ °C}$		14.8		
			$V_{GS} = 15\text{ V}, T_{vj} = 150\text{ °C}$		16.5		
Gate threshold voltage	$V_{GS(th)}$	$I_D = 40\text{ mA}, V_{DS} = V_{GS}, T_{vj} = 25\text{ °C},$ (tested after 1ms pulse at $V_{GS} = +20\text{ V}$)		3.45	4.5	5.15	V
Total gate charge	Q_G	$V_{DD} = 800\text{ V}, V_{GS} = -5/15\text{ V}$			0.277		μC
Internal gate resistor	R_{Gint}	$T_{vj} = 25\text{ °C}$			2		Ω
Input capacitance	C_{ISS}	$f = 100\text{ kHz}, V_{DS} = 800\text{ V}, V_{GS} = 0\text{ V}$	$T_{vj} = 25\text{ °C}$		8.8		nF
Output capacitance	C_{OSS}	$f = 100\text{ kHz}, V_{DS} = 800\text{ V}, V_{GS} = 0\text{ V}$	$T_{vj} = 25\text{ °C}$		0.42		nF
Reverse transfer capacitance	C_{rss}	$f = 100\text{ kHz}, V_{DS} = 800\text{ V}, V_{GS} = 0\text{ V}$	$T_{vj} = 25\text{ °C}$		0.028		nF
C_{OSS} stored energy	E_{OSS}	$V_{DS} = 800\text{ V}, V_{GS} = -5/15\text{ V}, T_{vj} = 25\text{ °C}$			176		μJ
Drain-source leakage current	I_{DSS}	$V_{DS} = 1200\text{ V}, V_{GS} = -5\text{ V}$	$T_{vj} = 25\text{ °C}$		0.4	380	μA
Gate-source leakage current	I_{GSS}	$V_{DS} = 0\text{ V}, T_{vj} = 25\text{ °C}$	$V_{GS} = 20\text{ V}$			400	nA
Turn-on delay time (inductive load)	$t_{d on}$	$I_D = 100\text{ A}, R_{Gon} = 3.9\text{ Ω}, V_{DD} = 600\text{ V}, V_{GS} = -5/15\text{ V}$	$T_{vj} = 25\text{ °C}$		45.1		ns
			$T_{vj} = 125\text{ °C}$		43.9		
			$T_{vj} = 150\text{ °C}$		42		
Rise time (inductive load)	t_r	$I_D = 100\text{ A}, R_{Gon} = 3.9\text{ Ω}, V_{DD} = 600\text{ V}, V_{GS} = -5/15\text{ V}$	$T_{vj} = 25\text{ °C}$		25.5		ns
			$T_{vj} = 125\text{ °C}$		25.3		
			$T_{vj} = 150\text{ °C}$		24.4		
Turn-off delay time (inductive load)	$t_{d off}$	$I_D = 100\text{ A}, R_{Goff} = 3.9\text{ Ω}, V_{DD} = 600\text{ V}, V_{GS} = -5/15\text{ V}$	$T_{vj} = 25\text{ °C}$		84.2		ns
			$T_{vj} = 125\text{ °C}$		86.7		
			$T_{vj} = 150\text{ °C}$		87.5		
Fall time (inductive load)	t_f	$I_D = 100\text{ A}, R_{Goff} = 3.9\text{ Ω}, V_{DD} = 600\text{ V}, V_{GS} = -5/15\text{ V}$	$T_{vj} = 25\text{ °C}$		32.2		ns
			$T_{vj} = 125\text{ °C}$		35.5		
			$T_{vj} = 150\text{ °C}$		37.3		
Turn-on energy loss per pulse	E_{on}	$I_D = 100\text{ A}, V_{DD} = 600\text{ V}, L_\sigma = 35\text{ nH}, V_{GS} = -5/15\text{ V}, R_{Gon} = 3.9\text{ Ω}, di/dt = 4.5\text{ kA/μs}$ ($T_{vj} = 150\text{ °C}$)	$T_{vj} = 25\text{ °C}$		1		mJ
			$T_{vj} = 125\text{ °C}$		1.15		
			$T_{vj} = 150\text{ °C}$		1.24		

(table continues...)
 Datasheet

Table 4 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Turn-off energy loss per pulse	E_{off}	$I_D = 100\text{ A}$, $V_{DD} = 600\text{ V}$, $L_\sigma = 35\text{ nH}$, $V_{GS} = -5/15\text{ V}$, $R_{Goff} = 3.9\text{ }\Omega$, $dv/dt = 21\text{ kV}/\mu\text{s}$ ($T_{vj} = 150\text{ }^\circ\text{C}$)	$T_{vj} = 25\text{ }^\circ\text{C}$	1.62		mJ
			$T_{vj} = 125\text{ }^\circ\text{C}$	1.85		
			$T_{vj} = 150\text{ }^\circ\text{C}$	1.93		
Thermal resistance, junction to heat sink	R_{thJH}	per MOSFET		0.58		K/W
Temperature under switching conditions	$T_{vj\text{ op}}$		-40		150	$^\circ\text{C}$

Note: The selection of positive and negative gate-source voltages impacts losses and the long-term behavior of the MOSFET and body diode. The design guidelines described in Application Note AN 2018-09 and AN 2021-13 must be considered to ensure sound operation of the device over the planned lifetime.

3 Body diode

Table 5 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit
DC body diode forward current	I_{SD}	$T_{vj} = 175\text{ }^\circ\text{C}$, $V_{GS} = -5\text{ V}$ $T_H = 20\text{ }^\circ\text{C}$	32	A

Table 6 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	V_{SD}	$I_{SD} = 100\text{ A}$, $V_{GS} = -5\text{ V}$	$T_{vj} = 25\text{ }^\circ\text{C}$	4.6	5.65	V
			$T_{vj} = 125\text{ }^\circ\text{C}$	4.35		
			$T_{vj} = 150\text{ }^\circ\text{C}$	4.3		

4 IGBT, 3-Level

Table 7 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit
Collector-emitter voltage	V_{CES}	$T_{vj} = 25\text{ }^\circ\text{C}$	1200	V
Implemented collector current	I_{CN}		100	A
Continuous DC collector current	I_{CDC}	$T_{vj\text{ max}} = 175\text{ }^\circ\text{C}$ $T_H = 65\text{ }^\circ\text{C}$	60	A
Repetitive peak collector current	I_{CRM}	t_p limited by $T_{vj\text{ op}}$	200	A

(table continues...)

Table 7 (continued) Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit
Gate-emitter peak voltage	V_{GES}		± 20	V

Table 8 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Collector-emitter saturation voltage	$V_{CE\ sat}$	$I_C = 100\text{ A}$, $V_{GE} = 15\text{ V}$	$T_{vj} = 25\text{ °C}$	1.50	TBD	V
			$T_{vj} = 125\text{ °C}$	1.64		
			$T_{vj} = 175\text{ °C}$	1.72		
Gate threshold voltage	V_{GEth}	$I_C = 2.5\text{ mA}$, $V_{CE} = V_{GE}$, $T_{vj} = 25\text{ °C}$	5.15	5.80	6.45	V
Gate charge	Q_G	$V_{GE} = \pm 15\text{ V}$, $V_{CC} = 600\text{ V}$		1.8		μC
Internal gate resistor	R_{Gint}	$T_{vj} = 25\text{ °C}$		1.5		Ω
Input capacitance	C_{ies}	$f = 100\text{ kHz}$, $T_{vj} = 25\text{ °C}$, $V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$		21.7		nF
Reverse transfer capacitance	C_{res}	$f = 100\text{ kHz}$, $T_{vj} = 25\text{ °C}$, $V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$		0.076		nF
Collector-emitter cut-off current	I_{CES}	$V_{CE} = 1200\text{ V}$, $V_{GE} = 0\text{ V}$	$T_{vj} = 25\text{ °C}$		0.009	mA
Gate-emitter leakage current	I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$, $T_{vj} = 25\text{ °C}$			100	nA
Turn-on delay time (inductive load)	t_{don}	$I_C = 100\text{ A}$, $V_{CC} = 600\text{ V}$, $V_{GE} = \pm 15\text{ V}$, $R_{Gon} = 1.8\text{ }\Omega$	$T_{vj} = 25\text{ °C}$	0.153		μs
			$T_{vj} = 125\text{ °C}$	0.166		
			$T_{vj} = 175\text{ °C}$	0.174		
Rise time (inductive load)	t_r	$I_C = 100\text{ A}$, $V_{CC} = 600\text{ V}$, $V_{GE} = \pm 15\text{ V}$, $R_{Gon} = 1.8\text{ }\Omega$	$T_{vj} = 25\text{ °C}$	0.033		μs
			$T_{vj} = 125\text{ °C}$	0.037		
			$T_{vj} = 175\text{ °C}$	0.040		
Turn-off delay time (inductive load)	t_{doff}	$I_C = 100\text{ A}$, $V_{CC} = 600\text{ V}$, $V_{GE} = \pm 15\text{ V}$, $R_{Goff} = 1.8\text{ }\Omega$	$T_{vj} = 25\text{ °C}$	0.283		μs
			$T_{vj} = 125\text{ °C}$	0.368		
			$T_{vj} = 175\text{ °C}$	0.421		
Fall time (inductive load)	t_f	$I_C = 100\text{ A}$, $V_{CC} = 600\text{ V}$, $V_{GE} = \pm 15\text{ V}$, $R_{Goff} = 1.8\text{ }\Omega$	$T_{vj} = 25\text{ °C}$	0.149		μs
			$T_{vj} = 125\text{ °C}$	0.221		
			$T_{vj} = 175\text{ °C}$	0.273		
Turn-on energy loss per pulse	E_{on}	$I_C = 100\text{ A}$, $V_{CC} = 600\text{ V}$, $L_\sigma = 35\text{ nH}$, $V_{GE} = \pm 15\text{ V}$, $R_{Gon} = 1.8\text{ }\Omega$, $di/dt = 2400\text{ A}/\mu\text{s}$ ($T_{vj} = 175\text{ °C}$)	$T_{vj} = 25\text{ °C}$	6.75		mJ
			$T_{vj} = 125\text{ °C}$	9.8		
			$T_{vj} = 175\text{ °C}$	11.5		

(table continues...)

Table 8 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Turn-off energy loss per pulse	E_{off}	$I_C = 100\text{ A}$, $V_{CC} = 600\text{ V}$, $L_\sigma = 35\text{ nH}$, $V_{GE} = \pm 15\text{ V}$, $R_{Goff} = 1.8\ \Omega$, $dv/dt = 2700\text{ V}/\mu\text{s}$ ($T_{vj} = 175\text{ °C}$)	$T_{vj} = 25\text{ °C}$	6.6		mJ
			$T_{vj} = 125\text{ °C}$	10.2		
			$T_{vj} = 175\text{ °C}$	12.7		
SC data	I_{SC}	$V_{GE} \leq 15\text{ V}$, $V_{CC} = 800\text{ V}$, $V_{CEmax} = V_{CES} - L_{sCE} \cdot di/dt$	$t_p \leq 8\ \mu\text{s}$, $T_{vj} \leq 150\text{ °C}$	370		A
			$t_p \leq 7\ \mu\text{s}$, $T_{vj} \leq 175\text{ °C}$	350		
Thermal resistance, junction to heat sink	R_{thJH}	per IGBT		0.920		K/W
Temperature under switching conditions	$T_{vj\text{ op}}$		-40		175	°C

Note: $T_{vj\text{ op}} > 150\text{ °C}$ is allowed for operation at overload conditions. For detailed specifications, please refer to AN 2018-14

5 Diode, 3-Level

Table 9 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit
Repetitive peak reverse voltage	V_{RRM}	$T_{vj} = 25\text{ °C}$	1200	V
Continuous DC forward current	I_F		100	A
Repetitive peak forward current	I_{FRM}	$t_p = 1\text{ ms}$	200	A
I^2t - value	I^2t	$t_p = 10\text{ ms}$, $V_R = 0\text{ V}$	$T_{vj} = 125\text{ °C}$	A^2s
			$T_{vj} = 175\text{ °C}$	

Table 10 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	V_F	$I_F = 100\text{ A}$, $V_{GE} = 0\text{ V}$	$T_{vj} = 25\text{ °C}$	1.72	TBD	V
			$T_{vj} = 125\text{ °C}$	1.59		
			$T_{vj} = 175\text{ °C}$	1.52		

(table continues...)

Table 10 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Peak reverse recovery current	I_{RM}	$V_{CC} = 600\text{ V}$, $I_F = 100\text{ A}$, $V_{GE} = -15\text{ V}$, $-di_F/dt = 2400\text{ A}/\mu\text{s}$ ($T_{vj} = 175\text{ °C}$)	$T_{vj} = 25\text{ °C}$	95.5		A
			$T_{vj} = 125\text{ °C}$	119		
			$T_{vj} = 175\text{ °C}$	134		
Recovered charge	Q_r	$V_{CC} = 600\text{ V}$, $I_F = 100\text{ A}$, $V_{GE} = -15\text{ V}$, $-di_F/dt = 2400\text{ A}/\mu\text{s}$ ($T_{vj} = 175\text{ °C}$)	$T_{vj} = 25\text{ °C}$	8.64		μC
			$T_{vj} = 125\text{ °C}$	15.1		
			$T_{vj} = 175\text{ °C}$	20		
Reverse recovery energy	E_{rec}	$V_{CC} = 600\text{ V}$, $I_F = 100\text{ A}$, $V_{GE} = -15\text{ V}$, $-di_F/dt = 2400\text{ A}/\mu\text{s}$ ($T_{vj} = 175\text{ °C}$)	$T_{vj} = 25\text{ °C}$	3.13		mJ
			$T_{vj} = 125\text{ °C}$	5.83		
			$T_{vj} = 175\text{ °C}$	7.58		
Thermal resistance, junction to heat sink	R_{thJH}	per diode		1.03		K/W
Temperature under switching conditions	$T_{vj\text{ op}}$		-40		175	°C

Note: $T_{vj\text{ op}} > 150\text{ °C}$ is allowed for operation at overload conditions. For detailed specifications, please refer to AN 2018-14.

6 NTC-Thermistor

Table 11 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Rated resistance	R_{25}	$T_{NTC} = 25\text{ °C}$		5		k Ω
Deviation of R_{100}	$\Delta R/R$	$T_{NTC} = 100\text{ °C}$, $R_{100} = 493\text{ }\Omega$	-5		5	%
Power dissipation	P_{25}	$T_{NTC} = 25\text{ °C}$			20	mW
B-value	$B_{25/50}$	$R_2 = R_{25} \exp[B_{25/50}(1/T_2 - 1/(298,15\text{ K}))]$		3375		K
B-value	$B_{25/80}$	$R_2 = R_{25} \exp[B_{25/80}(1/T_2 - 1/(298,15\text{ K}))]$		3411		K
B-value	$B_{25/100}$	$R_2 = R_{25} \exp[B_{25/100}(1/T_2 - 1/(298,15\text{ K}))]$		3433		K

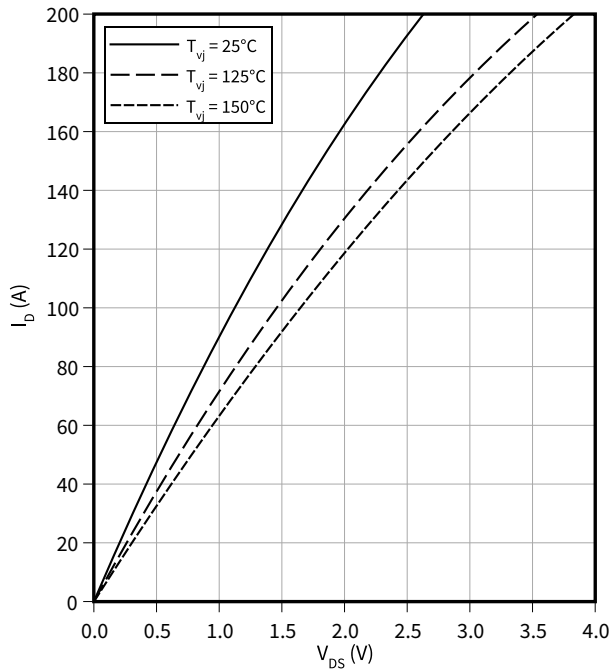
Note: Specification according to the valid application note.

7 Characteristics diagrams

Output characteristic (typical), MOSFET

$I_D = f(V_{DS})$

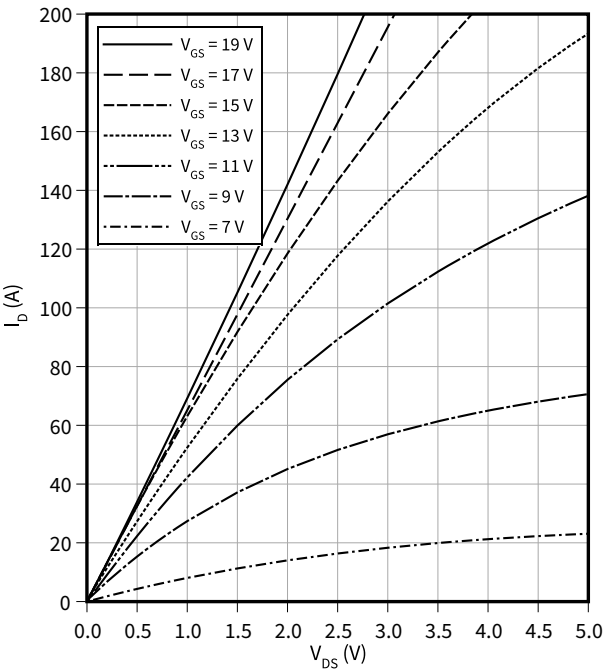
$V_{GS} = 15\text{ V}$



Output characteristic field (typical), MOSFET

$I_D = f(V_{DS})$

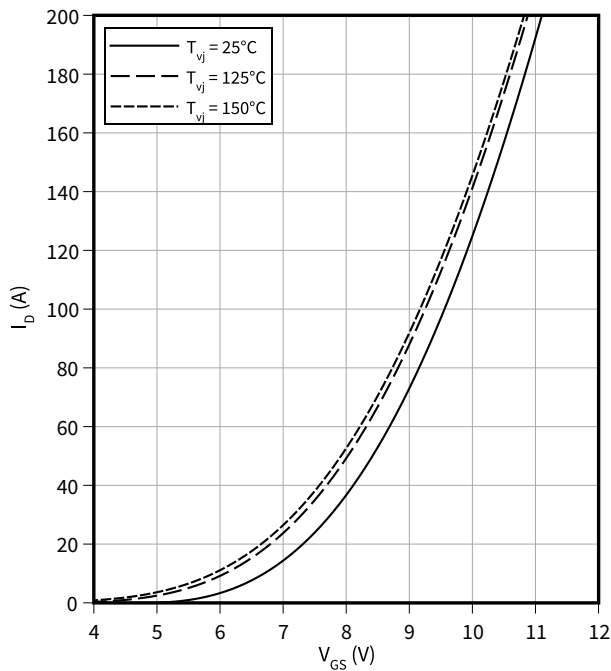
$T_{vj} = 150^\circ\text{C}$



Transfer characteristic (typical), MOSFET

$I_D = f(V_{GS})$

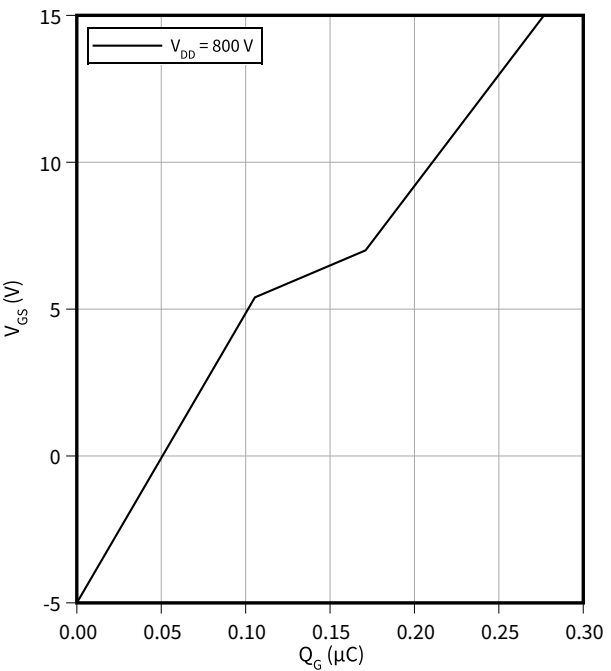
$V_{DS} = 20\text{ V}$



Gate charge characteristic (typical), MOSFET

$V_{GS} = f(Q_G)$

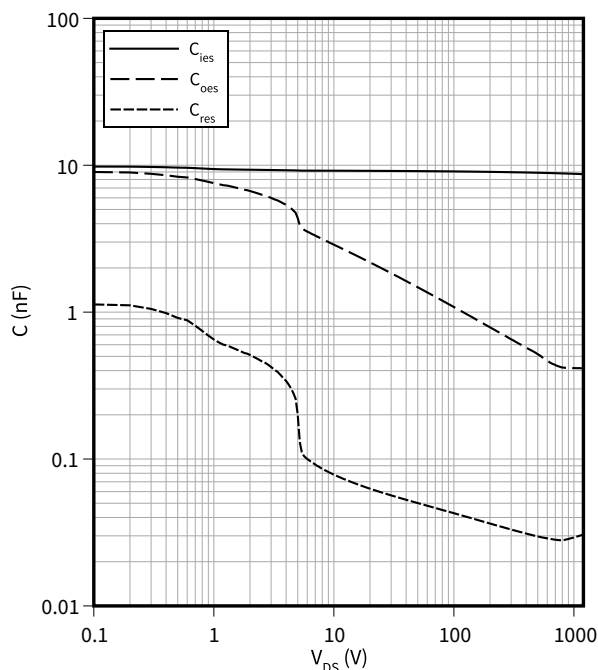
$I_D = 100\text{ A}, T_{vj} = 25^\circ\text{C}$



Capacity characteristic (typical), MOSFET

$$C = f(V_{DS})$$

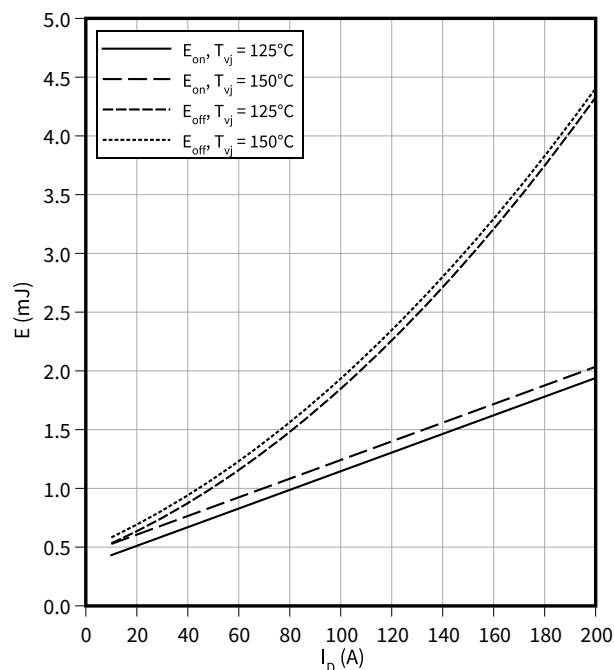
$f = 100 \text{ kHz}$, $T_{vj} = 25^\circ\text{C}$, $V_{GS} = 0 \text{ V}$



Switching losses (typical), MOSFET

$$E = f(I_D)$$

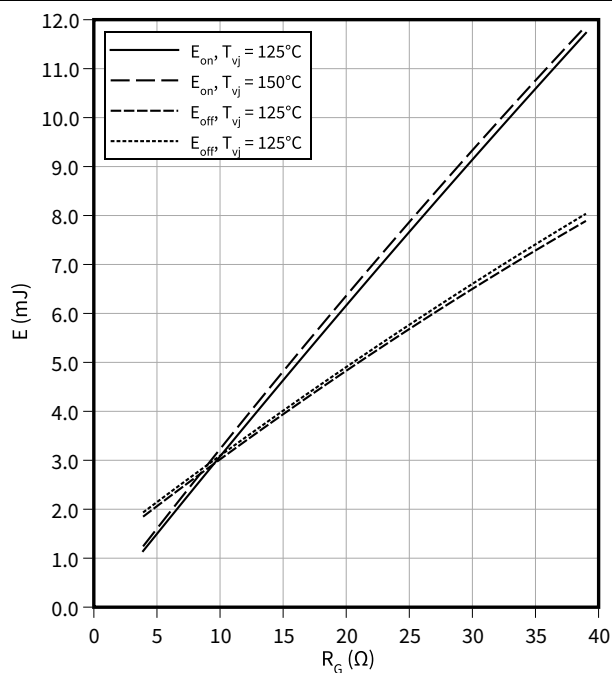
$R_{Goff} = 3.9 \Omega$, $R_{Gon} = 3.9 \Omega$, $V_{DS} = 600 \text{ V}$, $V_{GS} = -5/15 \text{ V}$



Switching losses (typical), MOSFET

$$E = f(R_G)$$

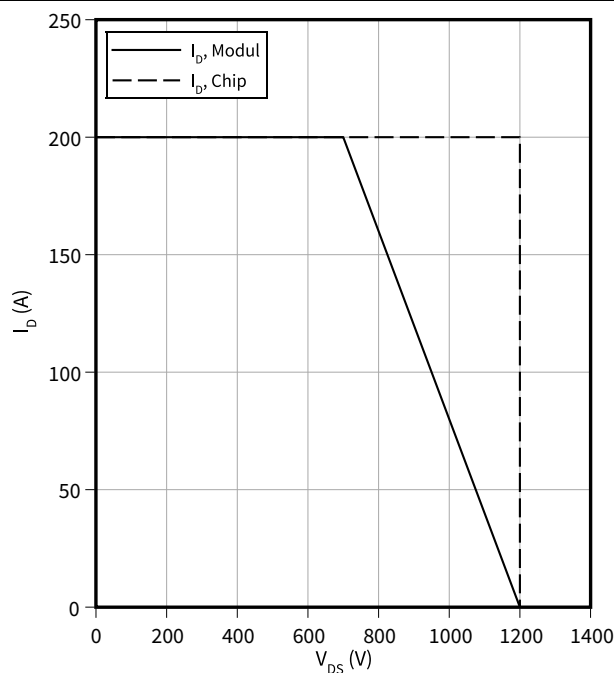
$V_{DS} = 600 \text{ V}$, $I_D = 100 \text{ A}$, $V_{GS} = -5/15 \text{ V}$



Reverse bias safe operating area (RBSOA), MOSFET

$$I_D = f(V_{DS})$$

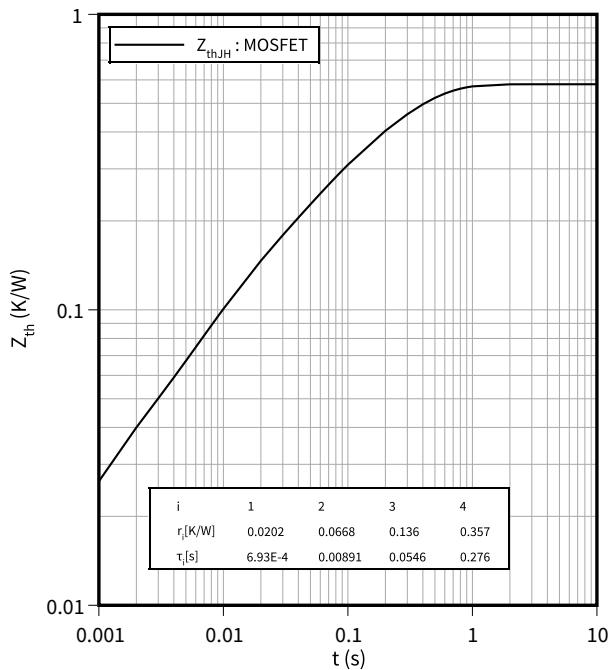
$R_{Goff} = 3.9 \Omega$, $T_{vj} = 150^\circ\text{C}$, $V_{GS} = -5/15 \text{ V}$



7 Characteristics diagrams

Transient thermal impedance , MOSFET

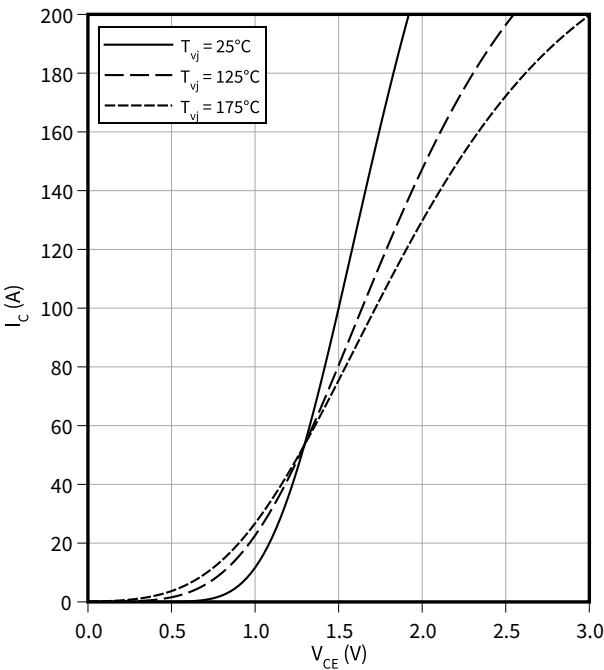
$Z_{th} = f(t)$



Output characteristic (typical), IGBT, 3-Level

$I_C = f(V_{CE})$

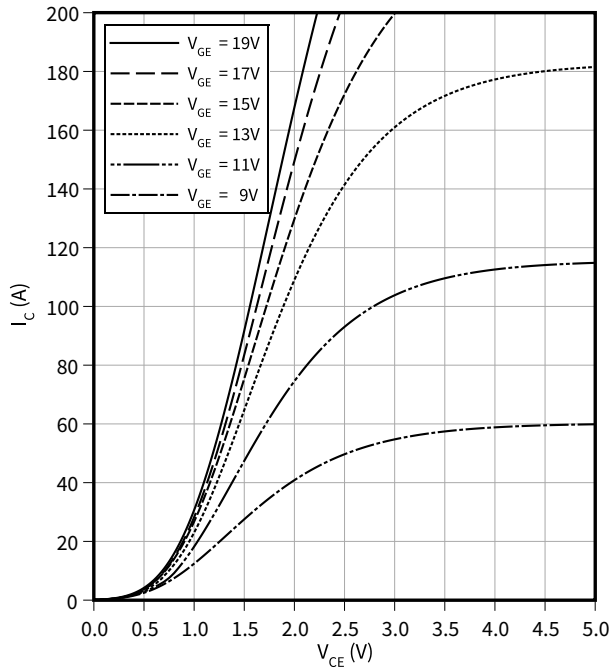
$V_{GE} = 15\text{ V}$



Output characteristic field (typical), IGBT, 3-Level

$I_C = f(V_{CE})$

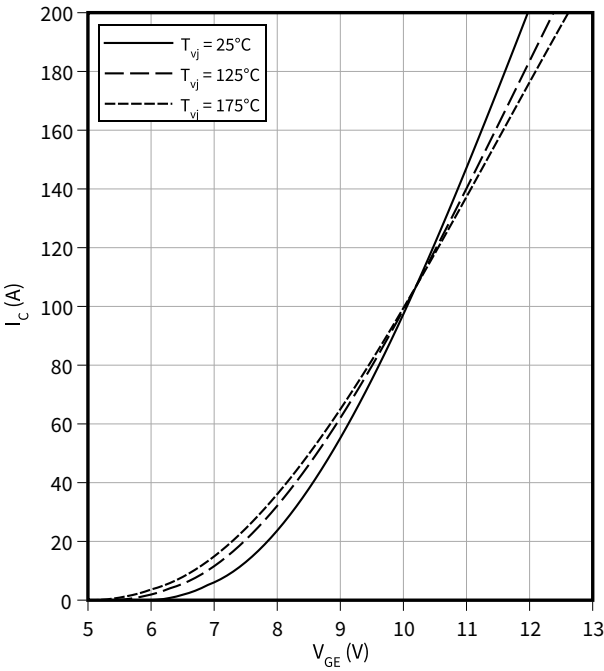
$T_{vj} = 175\text{ °C}$



Transfer characteristic (typical), IGBT, 3-Level

$I_C = f(V_{GE})$

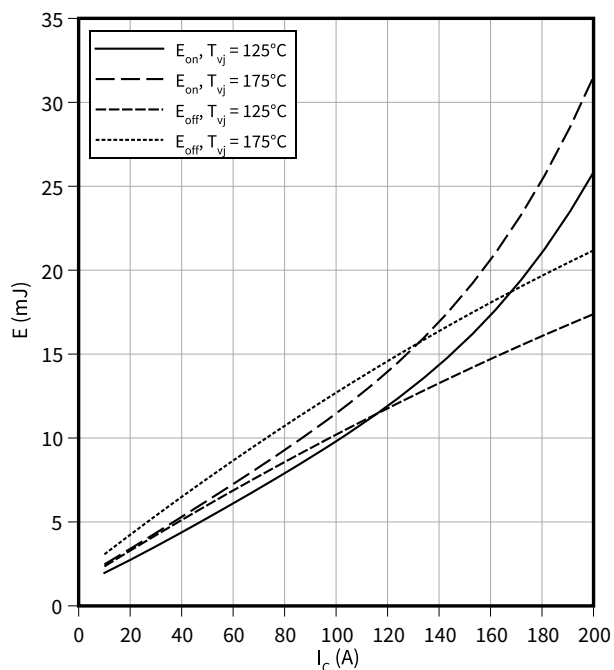
$V_{CE} = 20\text{ V}$



Switching losses (typical), IGBT, 3-Level

$$E = f(I_C)$$

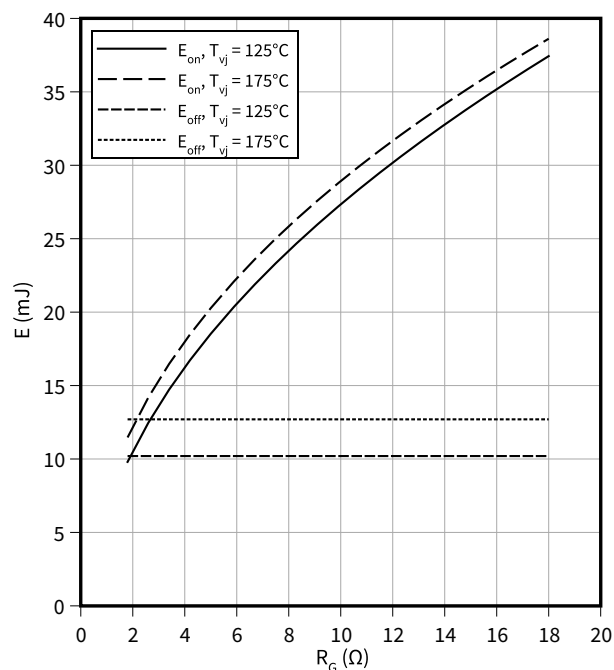
$R_{Goff} = 1.8 \Omega$, $R_{Gon} = 1.8 \Omega$, $V_{CC} = 600 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$



Switching losses (typical), IGBT, 3-Level

$$E = f(R_G)$$

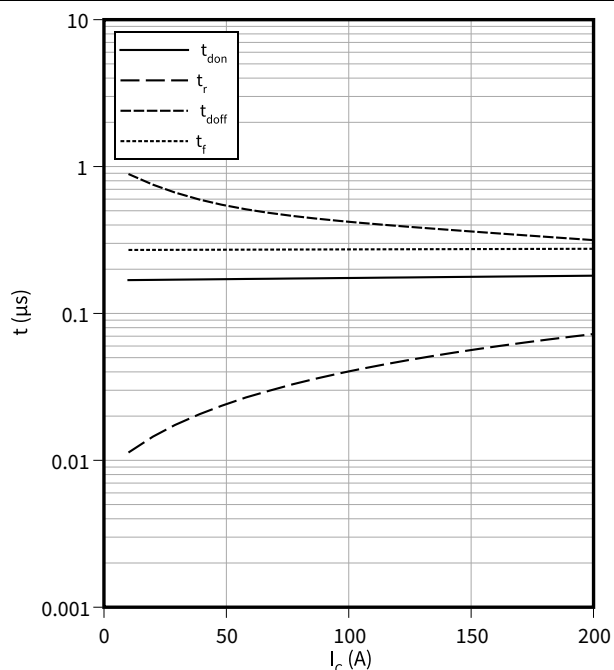
$I_C = 100 \text{ A}$, $V_{CC} = 600 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$



Switching times (typical), IGBT, 3-Level

$$t = f(I_C)$$

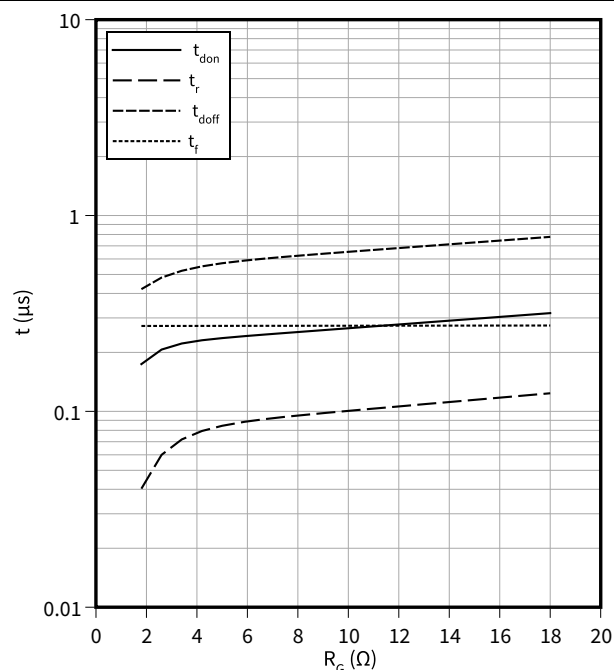
$R_{Goff} = 1.8 \Omega$, $R_{Gon} = 1.8 \Omega$, $V_{CC} = 600 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$, $T_{vj} = 175 \text{ °C}$



Switching times (typical), IGBT, 3-Level

$$t = f(R_G)$$

$I_C = 100 \text{ A}$, $V_{CC} = 600 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$, $T_{vj} = 175 \text{ °C}$

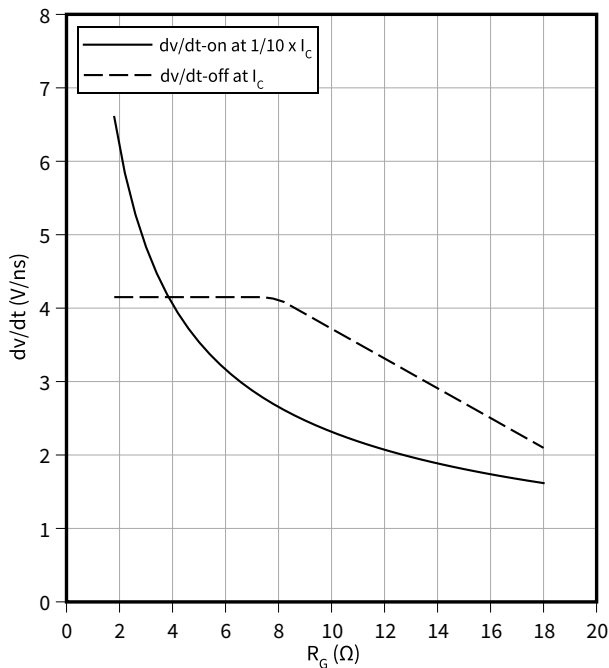


7 Characteristics diagrams

Voltage slope (typical), IGBT, 3-Level

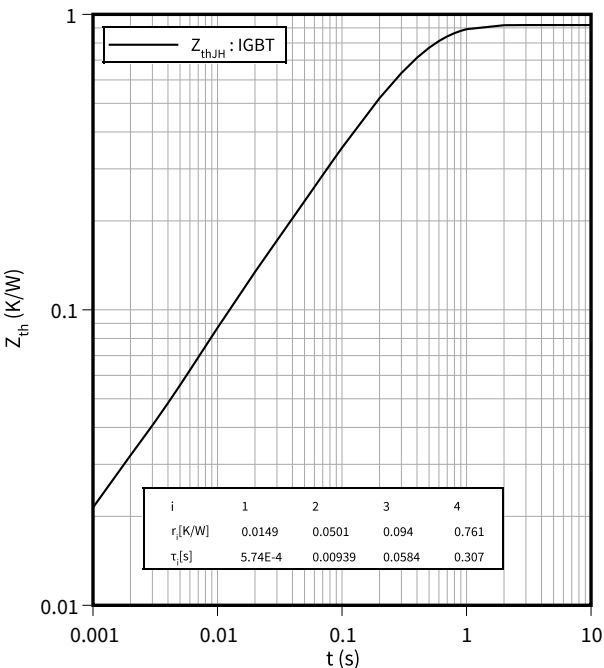
$dv/dt = f(R_G)$

$I_C = 100\text{ A}$, $V_{CC} = 600\text{ V}$, $V_{GE} = \pm 15\text{ V}$, $T_{vj} = 25\text{ }^\circ\text{C}$



Transient thermal impedance , IGBT, 3-Level

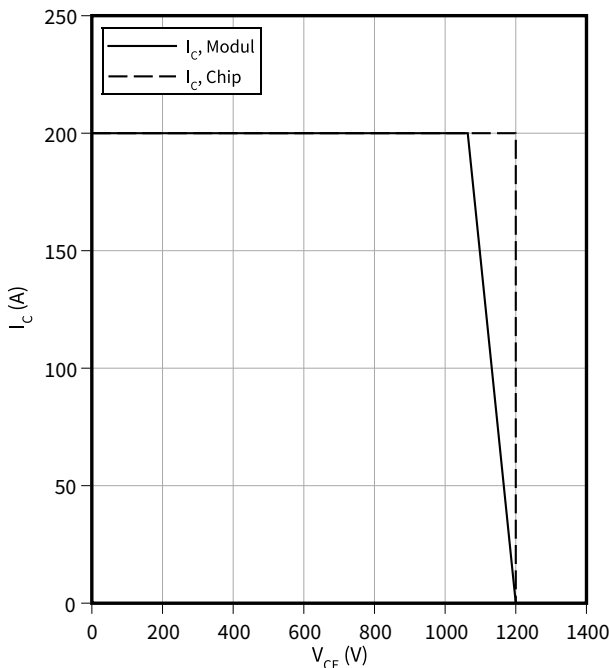
$Z_{th} = f(t)$



Reverse bias safe operating area (RBSOA), IGBT, 3-Level

$I_C = f(V_{CE})$

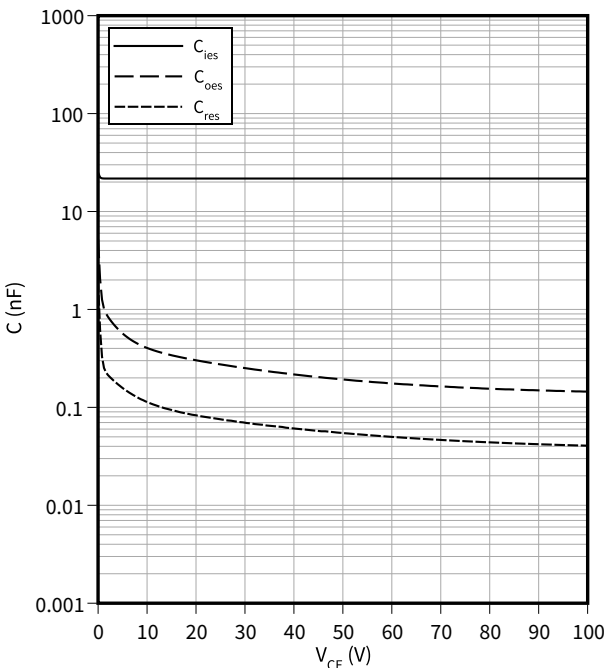
$R_{Goff} = 1.8\ \Omega$, $V_{GE} = \pm 15\text{ V}$, $T_{vj} = 175\text{ }^\circ\text{C}$



Capacity characteristic (typical), IGBT, 3-Level

$C = f(V_{CE})$

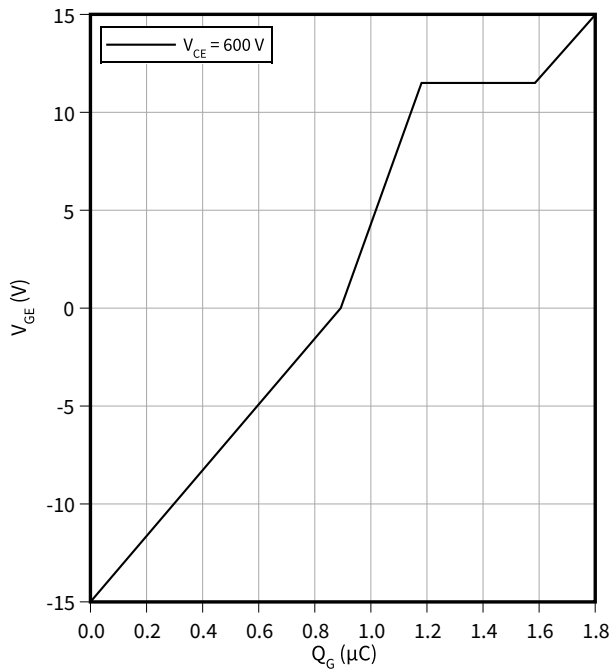
$f = 100\text{ kHz}$, $V_{GE} = 0\text{ V}$, $T_{vj} = 25\text{ }^\circ\text{C}$



7 Characteristics diagrams

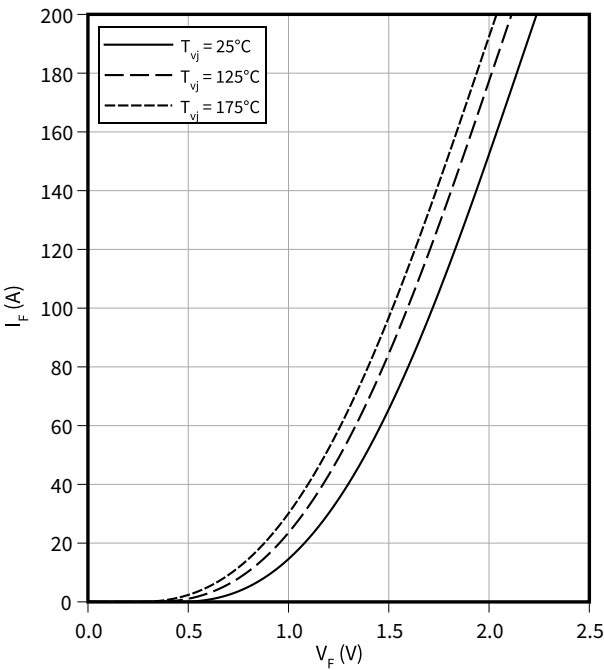
Gate charge characteristic (typical), IGBT, 3-Level

$V_{GE} = f(Q_G)$
 $I_C = 100\text{ A}, T_{vj} = 25\text{ °C}$



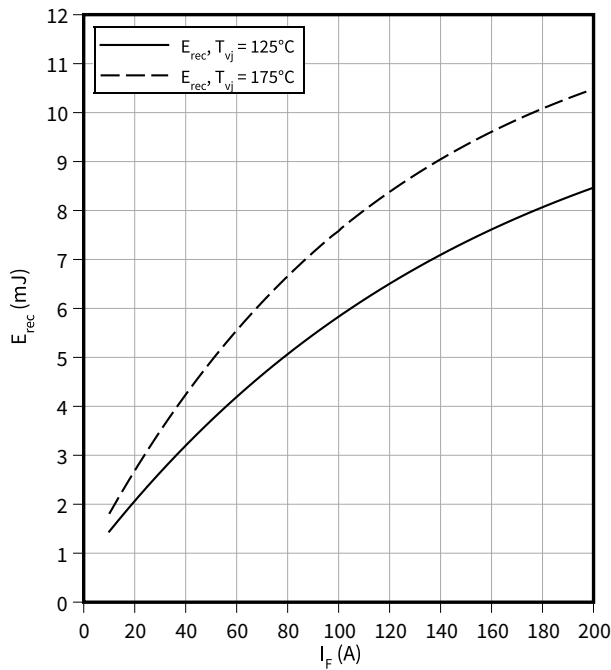
Forward characteristic (typical), Diode, 3-Level

$I_F = f(V_F)$



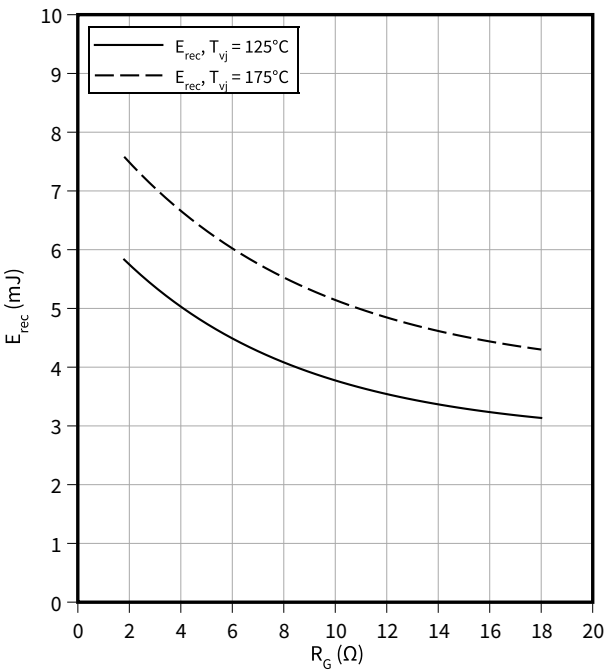
Switching losses (typical), Diode, 3-Level

$E_{rec} = f(I_F)$
 $R_{Gon} = 1.8\text{ }\Omega, V_{CC} = 600\text{ V}$



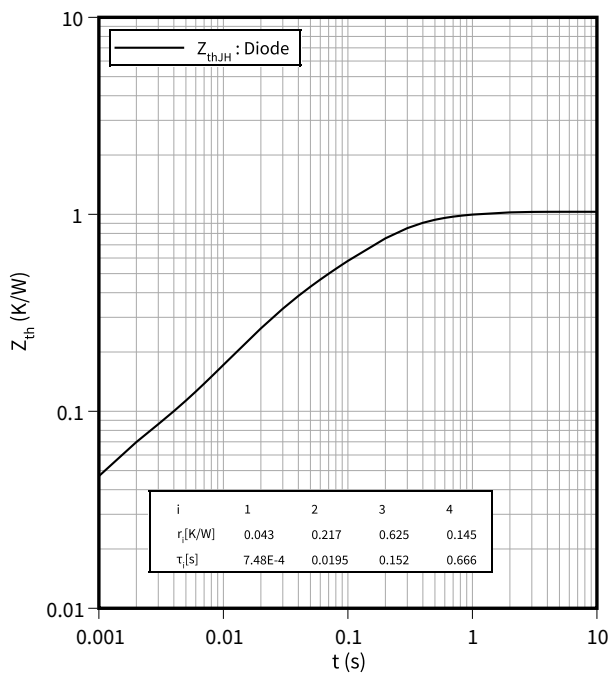
Switching losses (typical), Diode, 3-Level

$E_{rec} = f(R_G)$
 $I_F = 100\text{ A}, V_{CC} = 600\text{ V}$



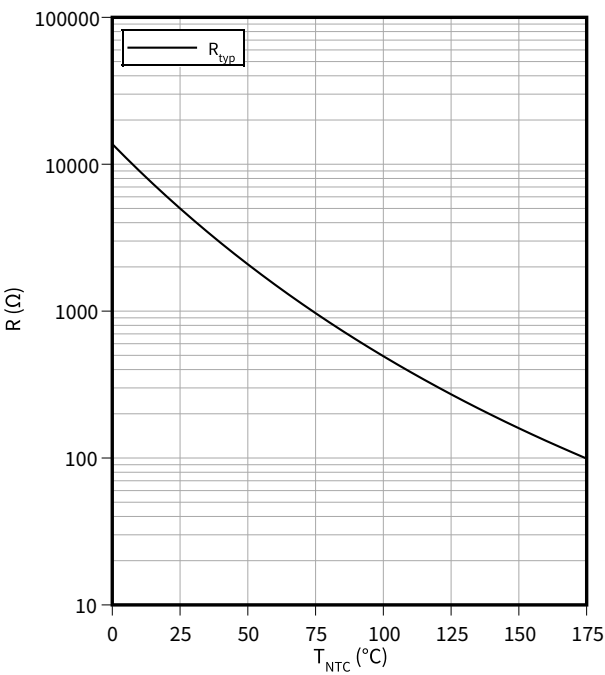
Transient thermal impedance, Diode, 3-Level

$Z_{th} = f(t)$



Temperature characteristic (typical), NTC-Thermistor

$R = f(T_{NTC})$



8 Circuit diagram

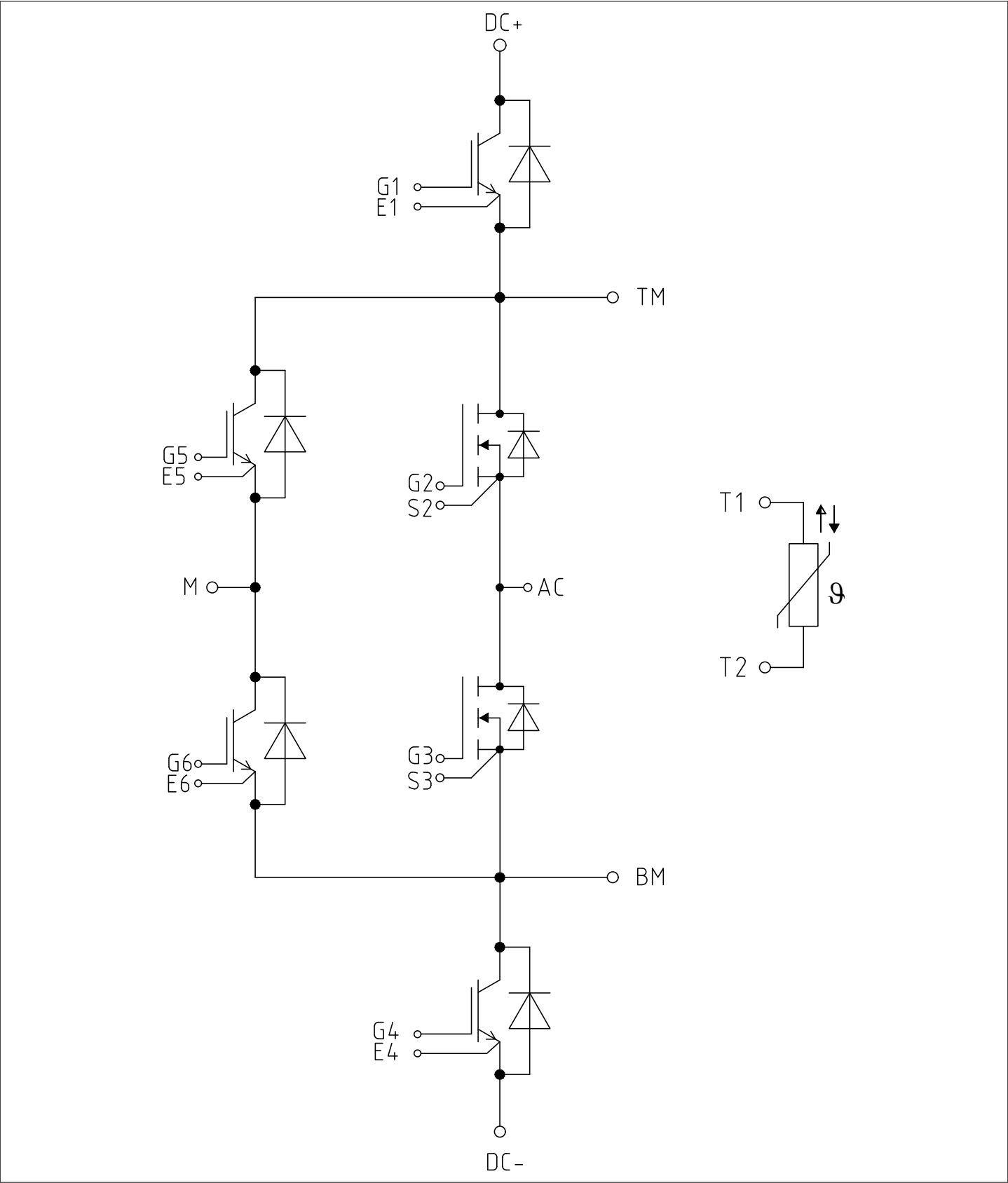


Figure 1

9 Package outlines

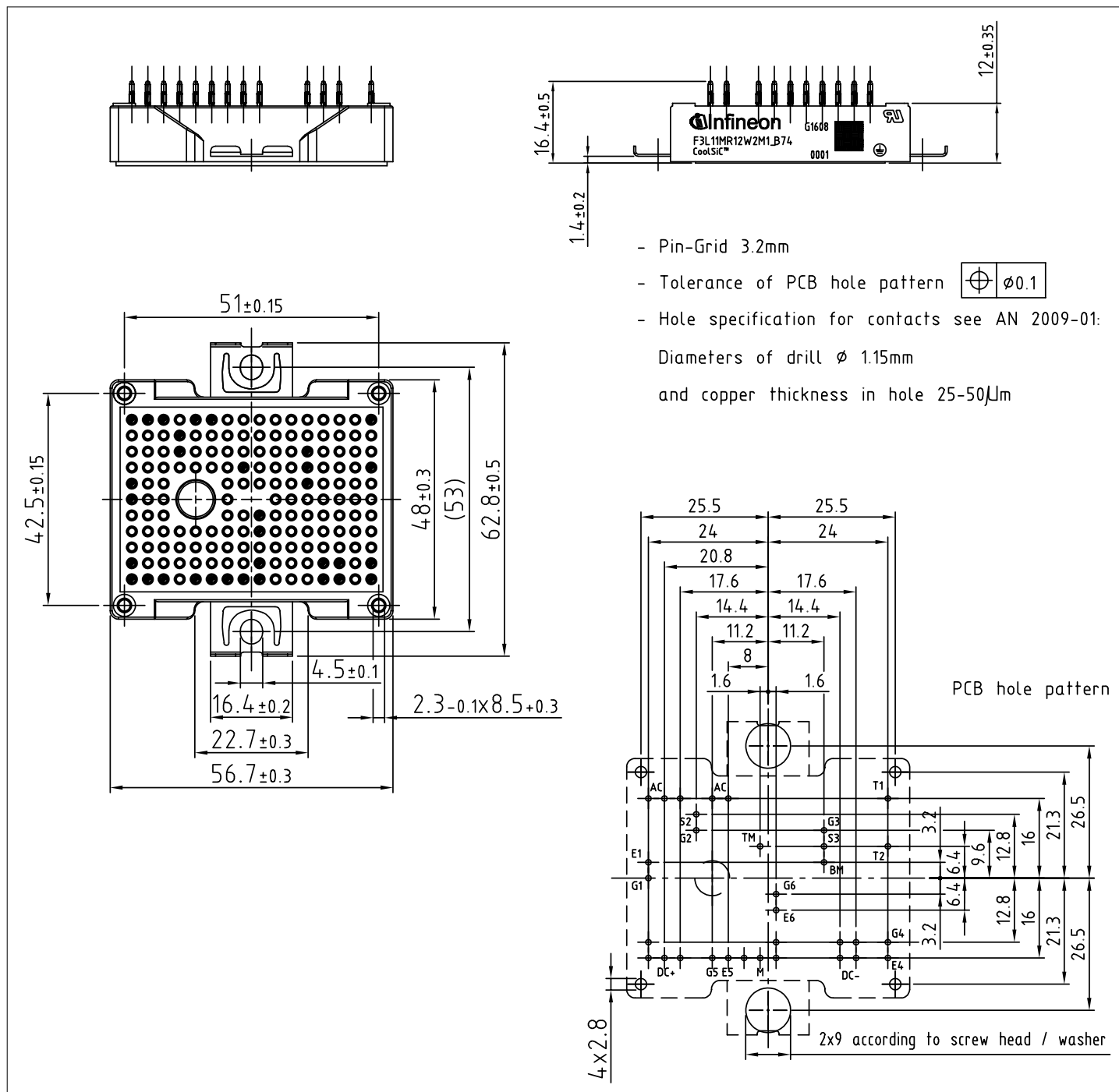


Figure 2

10 Module label code

Module label code			
Code format	Data Matrix		Barcode Code128
Encoding	ASCII text		Code Set A
Symbol size	16x16		23 digits
Standard	IEC24720 and IEC16022		IEC8859-1
Code content	<i>Content</i>	<i>Digit</i>	<i>Example</i>
	Module serial number	1 – 5	71549
	Module material number	6 - 11	142846
	Production order number	12 - 19	55054991
	Date code (production year)	20 – 21	15
	Date code (production week)	22 – 23	30
Example			
			
71549142846550549911530		71549142846550549911530	

Figure 3

Revision history

Document revision	Date of release	Description of changes
V1.0	2020-05-29	Target datasheet
V2.0	2020-09-04	Preliminary datasheet
n/a	2020-09-01	Datasheet migrated to a new system with a new layout and new revision number schema: target or preliminary datasheet = 0.xy; final datasheet = 1.xy
0.20	2022-05-25	Preliminary datasheet

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