



Vincotech

V23990-P629-L57Y

datasheet

flowBOOST 0 dual

1200 V / 50 A

Topology features

- Kelvin Emitter for improved switching performance
- Dual Booster
- Bypass Diode
- Open Emitter configuration
- Temperature sensor

Component features

- Easy paralleling
- High speed switching
- Low switching losses

Housing features

- Base isolation: Al_2O_3
- Clip-in, reliable mechanical connection, qualified for wave soldering
- Convex shaped substrate for superior thermal contact
- Thermo-mechanical push-and-pull force relief
- Press-fit pin
- Reliable cold welding connection

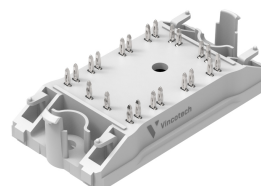
Target applications

- Solar Inverters

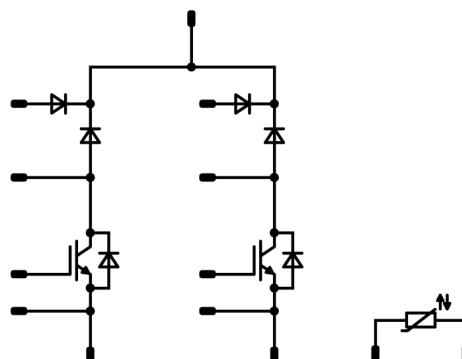
Types

- V23990-P629-L57Y

flow 0 12 mm housing



Schematic





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Maximum Ratings

$T_j = 25\text{ °C}$, unless otherwise specified

| Parameter | Symbol | Conditions | Value | Unit |
|-----------------------------------|------------|--|----------|--------------------|
| Boost Switch | | | | |
| Collector-emitter voltage | V_{CES} | | 1200 | V |
| Collector current (DC current) | I_C | $T_j = T_{jmax}$ $T_s = 80\text{ °C}$ | 54 | A |
| Repetitive peak collector current | I_{CRM} | t_p limited by T_{jmax} | 150 | A |
| Total power dissipation | P_{tot} | $T_j = T_{jmax}$ $T_s = 80\text{ °C}$ | 144 | W |
| Gate-emitter voltage | V_{GES} | | ± 20 | V |
| Short circuit ratings | t_{SC} | $V_{GE} = 15\text{ V}$, $V_{CC} = 800\text{ V}$ $T_j = 150\text{ °C}$ | 10 | μs |
| Maximum junction temperature | T_{jmax} | | 175 | $^{\circ}\text{C}$ |

Boost Diode

| | | | | |
|--|------------|--|------|--------------------|
| Peak repetitive reverse voltage | V_{RRM} | | 1200 | V |
| Forward current (DC current) | I_F | $T_j = T_{jmax}$ $T_s = 80\text{ °C}$ | 41 | A |
| Repetitive peak forward current | I_{FRM} | t_p limited by T_{jmax} | 112 | A |
| Surge (non-repetitive) forward current | I_{FSM} | Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 110\text{ °C}$ | 208 | A |
| Total power dissipation | P_{tot} | $T_j = T_{jmax}$ $T_s = 80\text{ °C}$ | 104 | W |
| Maximum junction temperature | T_{jmax} | | 175 | $^{\circ}\text{C}$ |

Boost Sw. Protection Diode

| | | | | |
|--|------------|--|------|----------------------|
| Peak repetitive reverse voltage | V_{RRM} | | 1600 | V |
| Forward current (DC current) | I_F | $T_j = T_{jmax}$ $T_s = 80\text{ °C}$ | 33 | A |
| Surge (non-repetitive) forward current | I_{FSM} | Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$ | 200 | A |
| Surge current capability | I^2t | | 200 | A^2s |
| Total power dissipation | P_{tot} | $T_j = T_{jmax}$ $T_s = 80\text{ °C}$ | 44 | W |
| Maximum junction temperature | T_{jmax} | | 150 | $^{\circ}\text{C}$ |



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Maximum Ratings

$T_j = 25\text{ °C}$, unless otherwise specified

| Parameter | Symbol | Conditions | Value | Unit |
|--|------------|--|-------|------------------|
| ByPass Diode | | | | |
| Peak repetitive reverse voltage | V_{RRM} | | 1600 | V |
| Forward current (DC current) | I_F | $T_j = T_{jmax}$ $T_a = 80\text{ °C}$ | 33 | A |
| Surge (non-repetitive) forward current | I_{FSM} | Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$ | 200 | A |
| Surge current capability | I^2t | | 200 | A ² s |
| Total power dissipation | P_{tot} | $T_j = T_{jmax}$ $T_a = 80\text{ °C}$ | 44 | W |
| Maximum junction temperature | T_{jmax} | | 150 | °C |

Module Properties

Thermal Properties

| | | | | |
|---|-----------|--|----------------------------|----|
| Storage temperature | T_{stg} | | -40...+125 | °C |
| Operation temperature under switching condition | T_{jop} | | -40...+($T_{jmax} - 25$) | °C |

Isolation Properties

| | | | | |
|----------------------------|------------|-------------------------------------|-------|----|
| Isolation voltage | V_{isol} | DC Test Voltage* $t_p = 2\text{ s}$ | 6000 | V |
| Creepage distance | | | >12,7 | mm |
| Clearance | | | 9,15 | mm |
| Comparative Tracking Index | CTI | | ≥ 200 | |

*100 % tested in production



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Characteristic Values

| Parameter | Symbol | Conditions | | | | | Values | | | Unit |
|-----------|--------|------------|------------------------------|---|-------------------------------------|------------|--------|-----|-----|------|
| | | | V_{GE} [V] V_{GS} [V] | V_{CE} [V] V_{DS} [V] V_F [V] | I_C [A] I_D [A] I_F [A] | T_j [°C] | Min | Typ | Max | |

Boost Switch

Static

| | | | | | | | | | | |
|--------------------------------------|--------------|---------------------|-----|------|--------|------------------|------|----------------------|---------------------|----|
| Gate-emitter threshold voltage | $V_{GE(th)}$ | $V_{CE} = V_{GE}$ | | | 0,0017 | 25 | 5,3 | 5,8 | 6,3 | V |
| Collector-emitter saturation voltage | V_{CEsat} | | 15 | | 50 | 25 125 150 | 1,78 | 2,05 2,38 2,46 | 2,42 ⁽¹⁾ | V |
| Collector-emitter cut-off current | I_{CES} | | 0 | 1200 | | 25 | | | 1 | µA |
| Gate-emitter leakage current | I_{GES} | | 20 | 0 | | 25 | | | 120 | nA |
| Internal gate resistance | r_g | | | | | | | 4 | | Ω |
| Input capacitance | C_{ies} | $f = 1 \text{ Mhz}$ | 0 | 25 | | 25 | | 2770 | | pF |
| Reverse transfer capacitance | C_{res} | | | | | | | 160 | | pF |
| Gate charge | Q_g | | ±15 | | 0 | 25 | | 380 | | nC |

Thermal

| | | | | | | | | | | |
|--|---------------|---|--|--|--|--|--|------|--|-----|
| Thermal resistance junction to sink ⁽²⁾ | $R_{th(j-s)}$ | $\lambda_{paste} = 5,2 \text{ W/mK}$ (PTM) | | | | | | 0,66 | | K/W |
|--|---------------|---|--|--|--|--|--|------|--|-----|

Dynamic

| | | | | | | | | | | |
|-----------------------------|--------------|---|------|-----|----|------------------|--|----------------------------|--|-----|
| Turn-on delay time | $t_{d(on)}$ | $R_{gon} = 16 \Omega$ $R_{goff} = 16 \Omega$ | 0/15 | 700 | 50 | 25 125 150 | | 51,52 49,53 49,6 | | ns |
| Rise time | t_r | | | | | 25 125 150 | | 32,23 34,09 34,79 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | | | 25 125 150 | | 445,98 510,38 527,93 | | ns |
| Fall time | t_f | | | | | 25 125 150 | | 17,62 100,59 130,95 | | ns |
| Turn-on energy (per pulse) | E_{on} | | | | | 25 125 150 | | 3,32 3,76 3,92 | | mWs |
| Turn-off energy (per pulse) | E_{off} | | | | | 25 125 150 | | 2,78 4,38 4,83 | | mWs |



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Characteristic Values

| Parameter | Symbol | Conditions | | | | | Values | | | Unit |
|-----------|--------|------------|------------------------------|---|-------------------------------------|------------|--------|-----|-----|------|
| | | | V_{GE} [V] V_{GS} [V] | V_{CE} [V] V_{DS} [V] V_F [V] | I_C [A] I_D [A] I_F [A] | T_j [°C] | Min | Typ | Max | |

Boost Diode

Static

| | | | | | | | | | | |
|-------------------------|-------|----------------|--|--|----|------------------|--|---------------------|--------------------|----|
| Forward voltage | V_F | | | | 20 | 25 125 150 | | 1,34 1,52 1,6 | 1,8 ⁽¹⁾ | V |
| Reverse leakage current | I_R | $V_i = 1200$ V | | | | 25 | | 16 | 2000 | µA |

Thermal

| | | | | | | | | | | |
|--|---------------|---------------------------------------|--|--|--|--|--|------|--|-----|
| Thermal resistance junction to sink ⁽²⁾ | $R_{th(j-s)}$ | $\lambda_{paste} = 5,2$ W/mK (PTM) | | | | | | 0,91 | | K/W |
|--|---------------|---------------------------------------|--|--|--|--|--|------|--|-----|

Dynamic

| | | | | | | | | | | |
|---------------------------------------|----------------------|---|------|-----|----|------------------|--|--|--|------|
| Peak recovery current | I_{RM} | $di/dt=1821$ A/µs $di/dt=1684$ A/µs $di/dt=1519$ A/µs | 0/15 | 700 | 50 | 25 125 150 | | 3,9 4,07 4,08 | | A |
| Reverse recovery time | t_{rr} | | | | | 25 125 150 | | 11,62 12,18 11,8 | | ns |
| Recovered charge | Q_r | | | | | 25 125 150 | | 0,024 0,029 0,029 | | µC |
| Reverse recovered energy | E_{rec} | | | | | 25 125 150 | | $2,028 \times 10^{-3}$ $2,585 \times 10^{-3}$ $2,645 \times 10^{-3}$ | | mWs |
| Peak rate of fall of recovery current | $(di_{rr}/dt)_{max}$ | | | | | 25 125 150 | | 755,21 928,95 817,42 | | A/µs |



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Characteristic Values

| Parameter | Symbol | Conditions | | | | | Values | | | Unit |
|-----------|--------|------------|------------------------------|---|-------------------------------------|------------|--------|-----|-----|------|
| | | | V_{GE} [V] V_{GS} [V] | V_{CE} [V] V_{DS} [V] V_F [V] | I_C [A] I_D [A] I_F [A] | T_j [°C] | Min | Typ | Max | |

Boost Sw. Protection Diode

Static

| | | | | | | | | | | |
|-------------------------|-------|----------------|--|--|---|-----------|--|----------------|---|----|
| Forward voltage | V_F | | | | 8 | 25 125 | | 0,996 0,907 | 1,21 ⁽¹⁾ 1,1 ⁽¹⁾ | V |
| Reverse leakage current | I_R | $V_r = 1600$ V | | | | 25 | | | 50 | μA |

Thermal

| | | | | | | | | | | |
|--|---------------|---------------------------------------|--|--|--|--|--|------|--|-----|
| Thermal resistance junction to sink ⁽²⁾ | $R_{th(j-s)}$ | $\lambda_{paste} = 5,2$ W/mK (PTM) | | | | | | 1,59 | | K/W |
|--|---------------|---------------------------------------|--|--|--|--|--|------|--|-----|

ByPass Diode

Static

| | | | | | | | | | | |
|-------------------------|-------|----------------|--|--|---|-----------|--|----------------|---|----|
| Forward voltage | V_F | | | | 8 | 25 125 | | 0,996 0,907 | 1,21 ⁽¹⁾ 1,1 ⁽¹⁾ | V |
| Reverse leakage current | I_R | $V_r = 1600$ V | | | | 25 | | | 50 | μA |

Thermal

| | | | | | | | | | | |
|--|---------------|---------------------------------------|--|--|--|--|--|------|--|-----|
| Thermal resistance junction to sink ⁽²⁾ | $R_{th(j-s)}$ | $\lambda_{paste} = 5,2$ W/mK (PTM) | | | | | | 1,59 | | K/W |
|--|---------------|---------------------------------------|--|--|--|--|--|------|--|-----|



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Characteristic Values

| Parameter | Symbol | Conditions | | | | | Values | | | Unit |
|-----------|--------|------------------------------|---|-------------------------------------|------------|--|--------|-----|-----|------|
| | | V_{GE} [V] V_{GS} [V] | V_{CE} [V] V_{DS} [V] V_F [V] | I_C [A] I_D [A] I_F [A] | T_j [°C] | | Min | Typ | Max | |

Thermistor

Static

| | | | | | | | | | | |
|--------------------------------|----------------|-------------------------------|--|--|-----|-----|------|----|--|------|
| Rated resistance | R | | | | 25 | | 22 | | | kΩ |
| Deviation of R25 | $\Delta_{R/R}$ | $R_{25} = 22 \text{ k}\Omega$ | | | 25 | -5 | | 5 | | % |
| Deviation of R100 | | $R_{100} = 1486 \Omega$ | | | 100 | -12 | | 14 | | |
| Power dissipation | P | | | | | | 200 | | | mW |
| Power dissipation constant | d | | | | 25 | | 2 | | | mW/K |
| B-value | $B_{(25/50)}$ | Tol. $\pm 3 \%$ | | | | | 3950 | | | K |
| B-value | $B_{(25/100)}$ | Tol. $\pm 3 \%$ | | | | | 3998 | | | K |
| Vincotech Thermistor Reference | | | | | | | | B | | |

⁽¹⁾ Value at chip level

⁽²⁾ Only valid with pre-applied Vincotech thermal interface material.



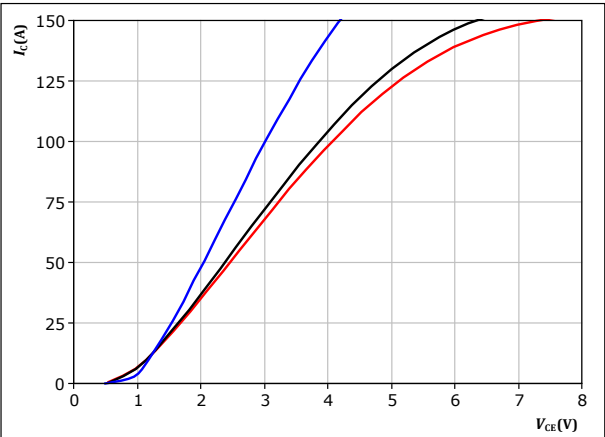
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Boost Switch Characteristics

figure 1. IGBT

Typical output characteristics

$I_C = f(V_{CE})$

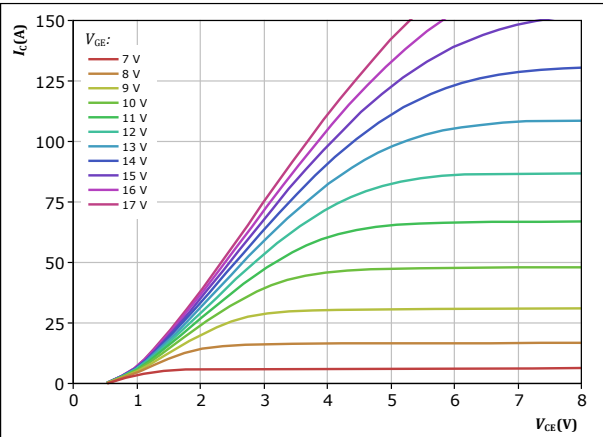


$t_p = 250 \mu s$
 $V_{GE} = 15 V$
 $T_j:$ 25 °C, 125 °C, 150 °C

figure 2. IGBT

Typical output characteristics

$I_C = f(V_{CE})$

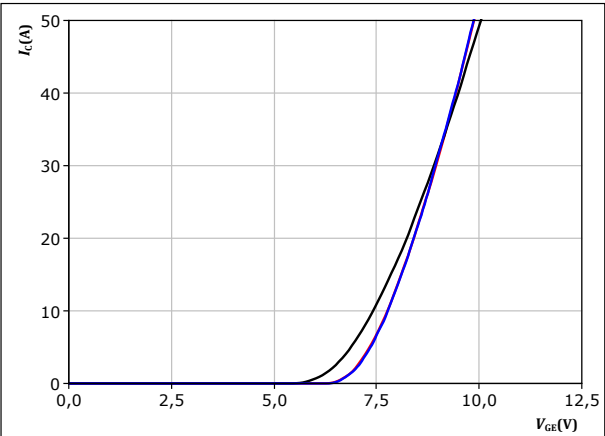


$t_p = 250 \mu s$
 $T_j = 150 \text{ °C}$
 V_{GE} from 7 V to 17 V in steps of 1 V

figure 3. IGBT

Typical transfer characteristics

$I_C = f(V_{GE})$

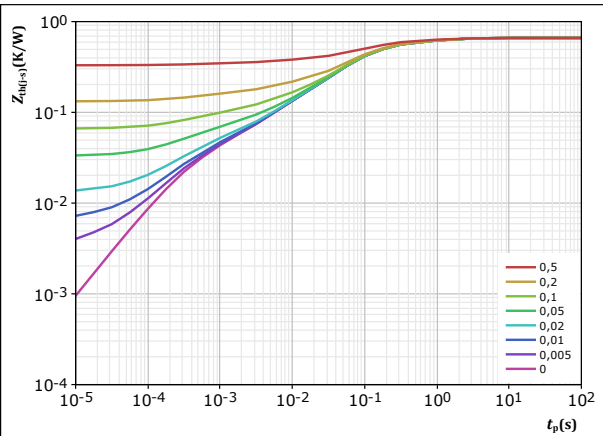


$t_p = 250 \mu s$
 $V_{CE} = 10 V$
 $T_j:$ 25 °C, 125 °C, 150 °C

figure 4. IGBT

Transient thermal impedance as a function of pulse width

$Z_{th(j-s)} = f(t_p)$



$D = t_p / T$
 $R_{th(j-s)} = 0,66 \text{ K/W}$
IGBT thermal model values

| $R \text{ (K/W)}$ | $\tau \text{ (s)}$ |
|-------------------|--------------------|
| 8,54E-02 | 1,27E+00 |
| 1,79E-01 | 1,86E-01 |
| 3,14E-01 | 6,03E-02 |
| 5,28E-02 | 4,65E-03 |
| 2,90E-02 | 3,68E-04 |



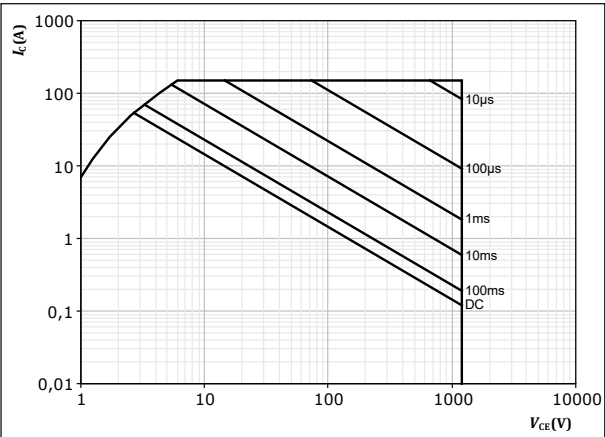
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Boost Switch Characteristics

figure 5. IGBT

Safe operating area

$I_C = f(V_{CE})$



$D =$ single pulse
 $T_s = 80 \text{ } ^\circ\text{C}$
 $V_{GE} = 15 \text{ V}$
 $T_j = T_{jmax}$

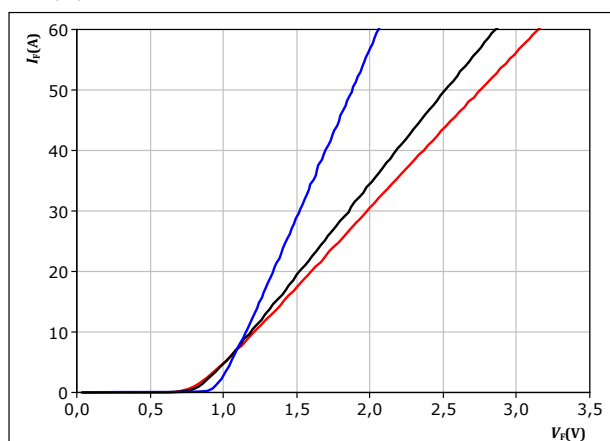


Boost Diode Characteristics

figure 6. FWD

Typical forward characteristics

$$I_F = f(V_F)$$



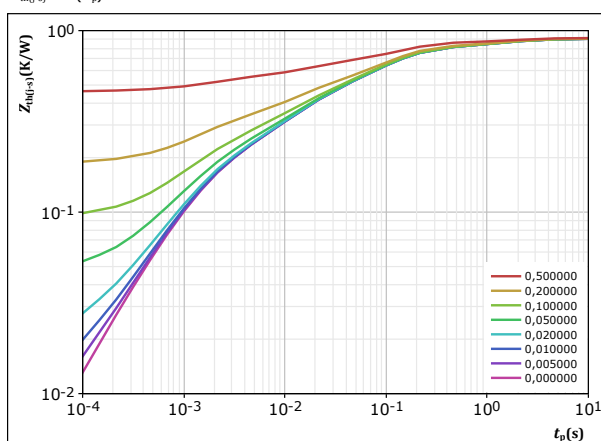
$t_p = 250 \mu s$

T_j : 25 °C, 125 °C, 150 °C

figure 7. FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$

$R_{th(j-s)} = 0,91 \text{ K/W}$

FWD thermal model values

| $R \text{ (K/W)}$ | $\tau \text{ (s)}$ |
|-------------------|--------------------|
| 2,50E-02 | 3,83E+01 |
| 1,15E-01 | 1,28E+00 |
| 4,15E-01 | 9,60E-02 |
| 2,16E-01 | 1,16E-02 |
| 1,49E-01 | 1,33E-03 |



Boost Sw. Protection Diode Characteristics

figure 8. Rectifier

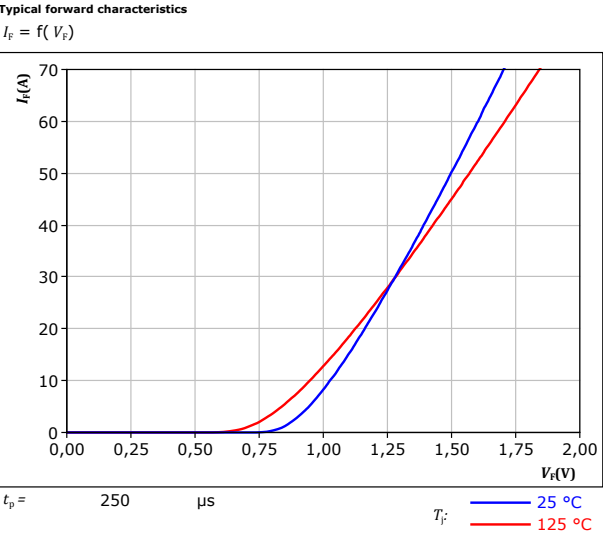
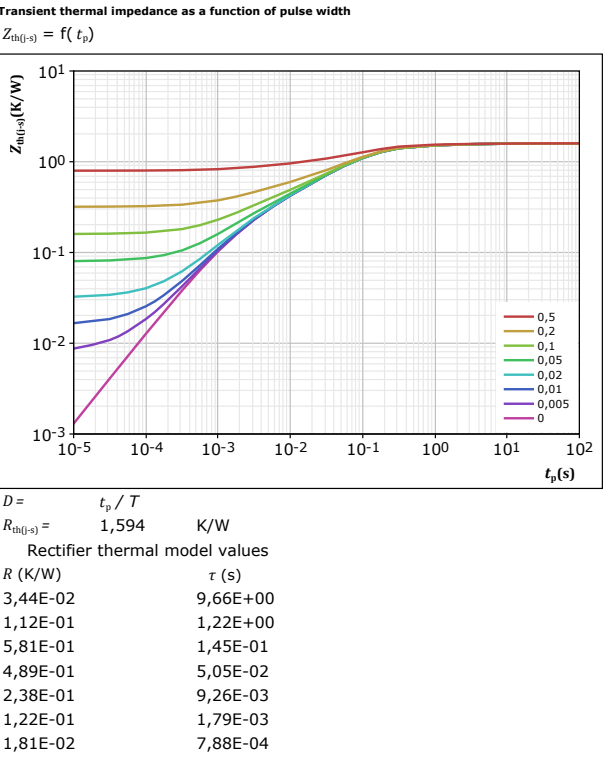


figure 9. Rectifier





ByPass Diode Characteristics

figure 10.

Rectifier

Typical forward characteristics

$$I_F = f(V_F)$$

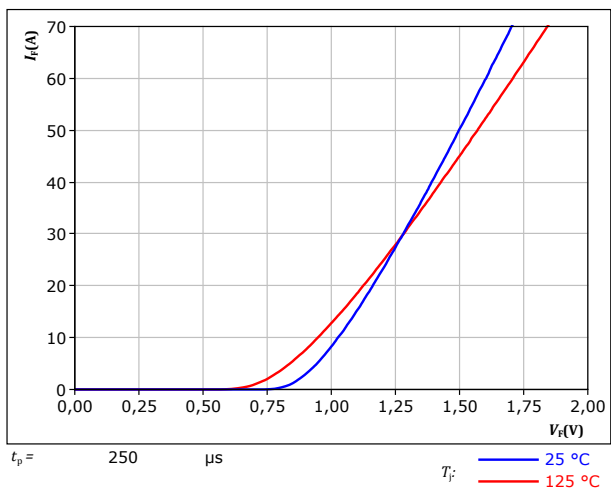
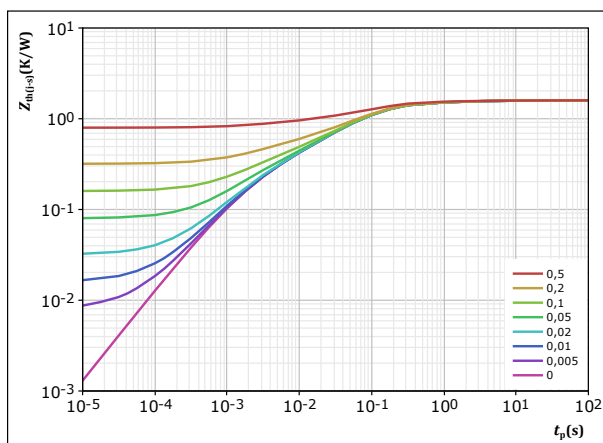


figure 11.

Rectifier

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



| | | |
|--------------------------------|------------|-----|
| $D =$ | t_p / T | |
| $R_{th(j-s)} =$ | 1,594 | K/W |
| Rectifier thermal model values | | |
| R (K/W) | τ (s) | |
| 3,44E-02 | 9,66E+00 | |
| 1,12E-01 | 1,22E+00 | |
| 5,81E-01 | 1,45E-01 | |
| 4,89E-01 | 5,05E-02 | |
| 2,38E-01 | 9,26E-03 | |
| 1,22E-01 | 1,79E-03 | |
| 1,81E-02 | 7,88E-04 | |



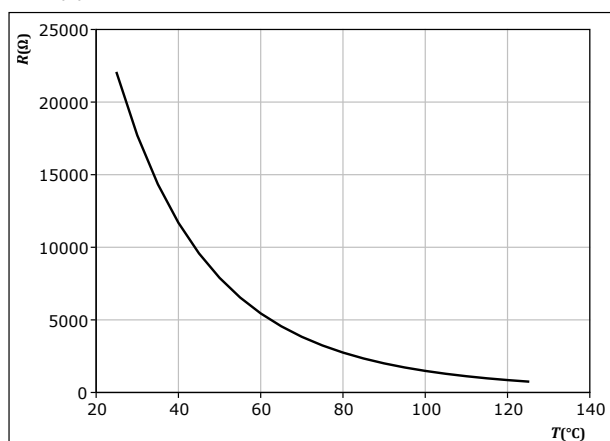
Thermistor Characteristics

figure 12.

Thermistor

Typical NTC characteristic as function of temperature

$$R_T = f(T)$$





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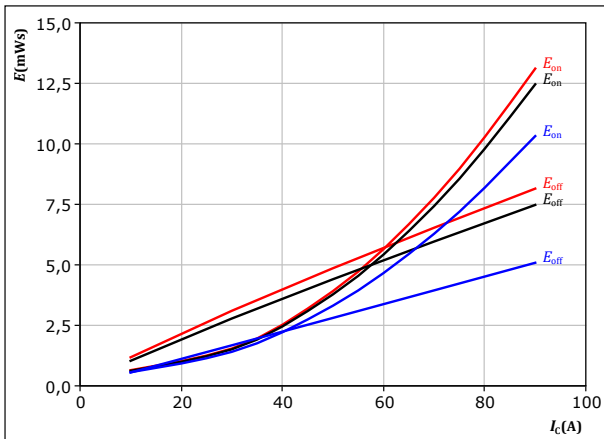
Boost Switching Characteristics

figure 13.

IGBT

Typical switching energy losses as a function of collector current

$$E = f(I_C)$$



With an inductive load at

$V_{CE} = 700 \text{ V}$
 $V_{GE} = 0/15 \text{ V}$
 $R_{gon} = 16 \text{ } \Omega$
 $R_{goff} = 16 \text{ } \Omega$

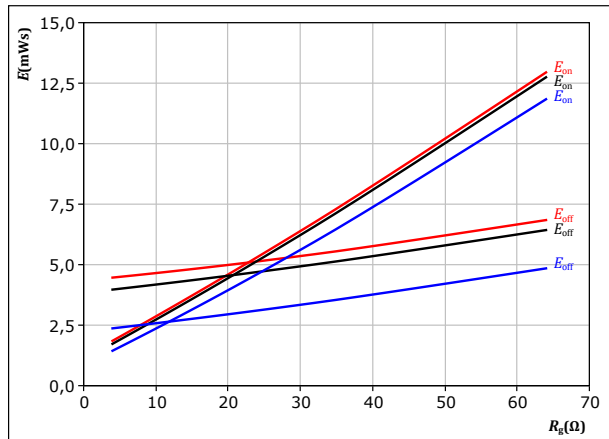
T_j :
— 25 °C
— 125 °C
— 150 °C

figure 14.

IGBT

Typical switching energy losses as a function of IGBT turn on gate resistor

$$E = f(R_g)$$



With an inductive load at

$V_{CE} = 700 \text{ V}$
 $V_{GE} = 0/15 \text{ V}$
 $I_C = 50 \text{ A}$

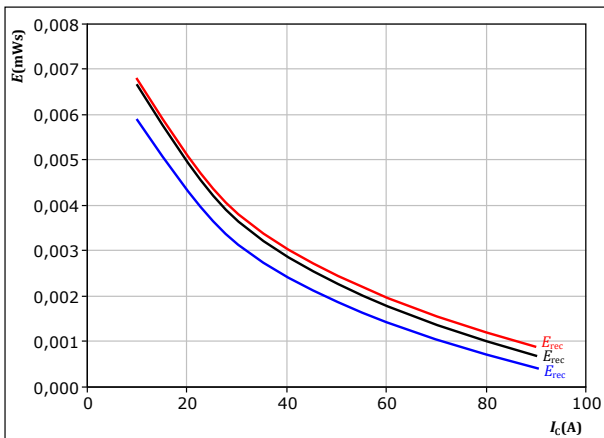
T_j :
— 25 °C
— 125 °C
— 150 °C

figure 15.

FWD

Typical reverse recovered energy loss as a function of collector current

$$E_{rec} = f(I_C)$$



With an inductive load at

$V_{CE} = 700 \text{ V}$
 $V_{GE} = 0/15 \text{ V}$
 $R_{gon} = 16 \text{ } \Omega$

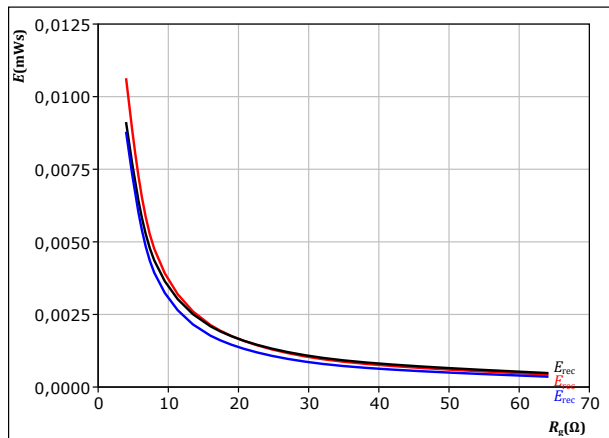
T_j :
— 25 °C
— 125 °C
— 150 °C

figure 16.

FWD

Typical reverse recovered energy loss as a function of IGBT turn on gate resistor

$$E_{rec} = f(R_g)$$



With an inductive load at

$V_{CE} = 700 \text{ V}$
 $V_{GE} = 0/15 \text{ V}$
 $I_C = 50 \text{ A}$

T_j :
— 25 °C
— 125 °C
— 150 °C



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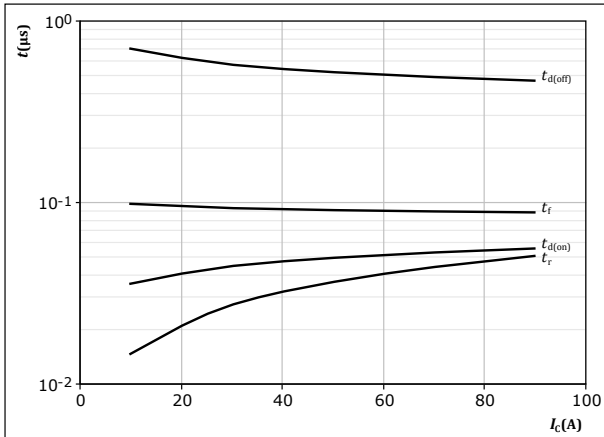
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datasheet

Boost Switching Characteristics

figure 17.

IGBT

Typical switching times as a function of collector current
 $t = f(I_c)$



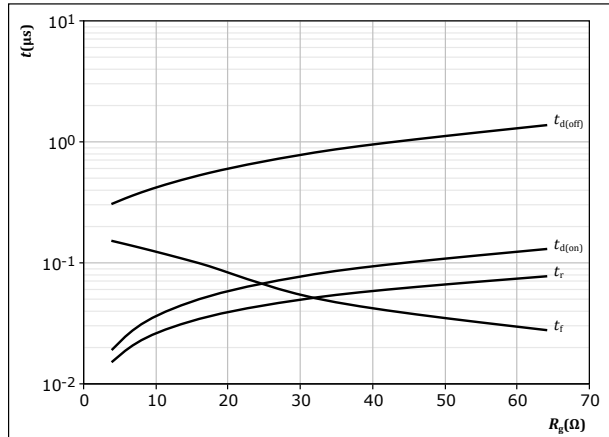
With an inductive load at

$T_j = 150$ °C
 $V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $R_{gon} = 16$ Ω
 $R_{goff} = 16$ Ω

figure 18.

IGBT

Typical switching times as a function of IGBT turn on gate resistor
 $t = f(R_g)$



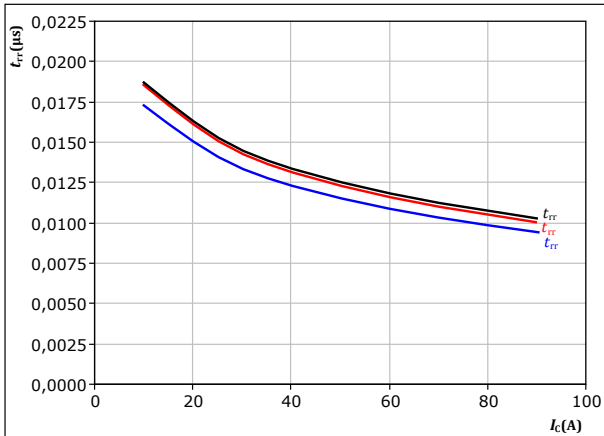
With an inductive load at

$T_j = 150$ °C
 $V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $I_c = 50$ A

figure 19.

FWD

Typical reverse recovery time as a function of collector current
 $t_{rr} = f(I_c)$



With an inductive load at

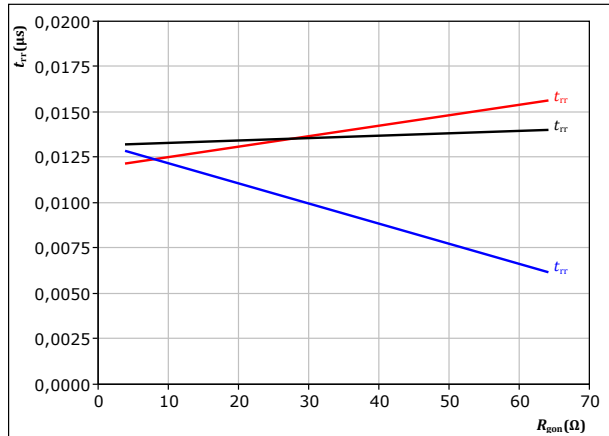
$V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $R_{gon} = 16$ Ω

T_j :
— 25 °C
— 125 °C
— 150 °C

figure 20.

FWD

Typical reverse recovery time as a function of IGBT turn on gate resistor
 $t_{rr} = f(R_{gon})$



With an inductive load at

$V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $I_c = 50$ A

T_j :
— 25 °C
— 125 °C
— 150 °C

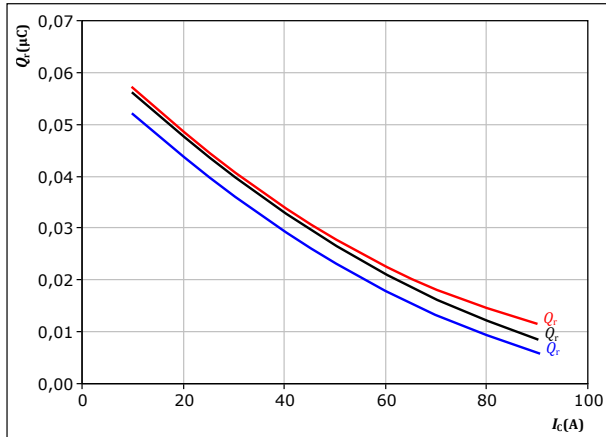


Boost Switching Characteristics

figure 21. FWD

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$



With an inductive load at

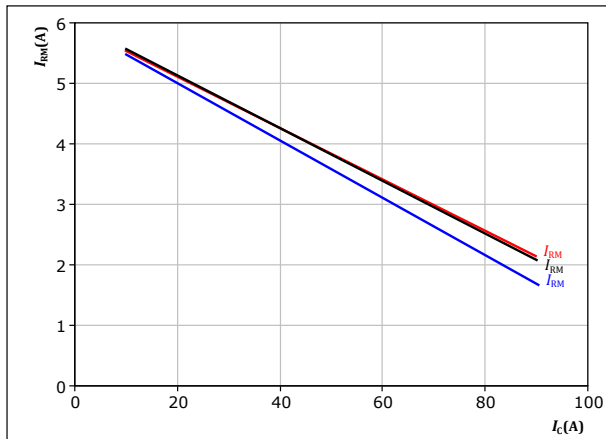
$V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $R_{gon} = 16$ Ω

T_j :
— 25 °C
— 125 °C
— 150 °C

figure 23. FWD

Typical peak reverse recovery current as a function of collector current

$$I_{RM} = f(I_c)$$



With an inductive load at

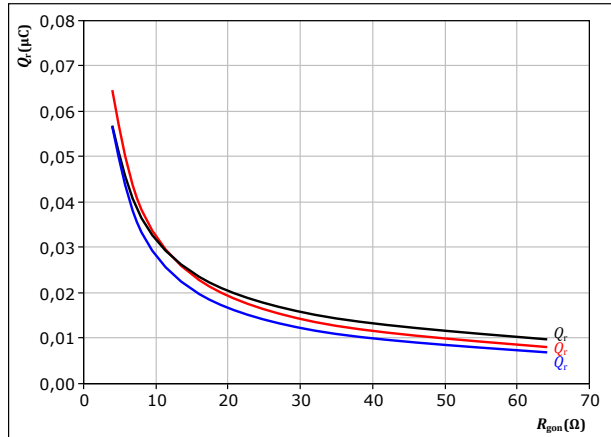
$V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $R_{gon} = 16$ Ω

T_j :
— 25 °C
— 125 °C
— 150 °C

figure 22. FWD

Typical recovered charge as a function of IGBT turn on gate resistor

$$Q_r = f(R_{gon})$$



With an inductive load at

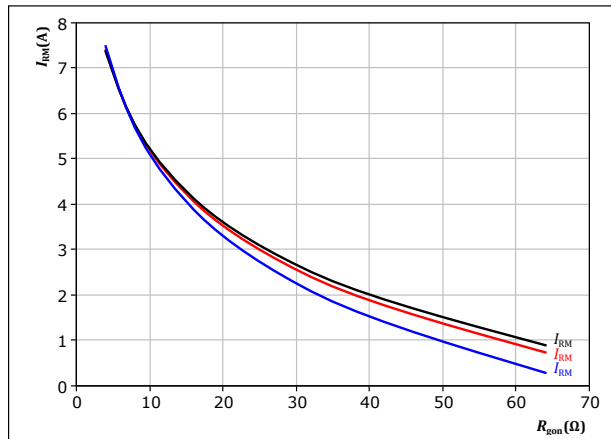
$V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $I_c = 50$ A

T_j :
— 25 °C
— 125 °C
— 150 °C

figure 24. FWD

Typical peak reverse recovery current as a function of IGBT turn on gate resistor

$$I_{RM} = f(R_{gon})$$



With an inductive load at

$V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $I_c = 50$ A

T_j :
— 25 °C
— 125 °C
— 150 °C



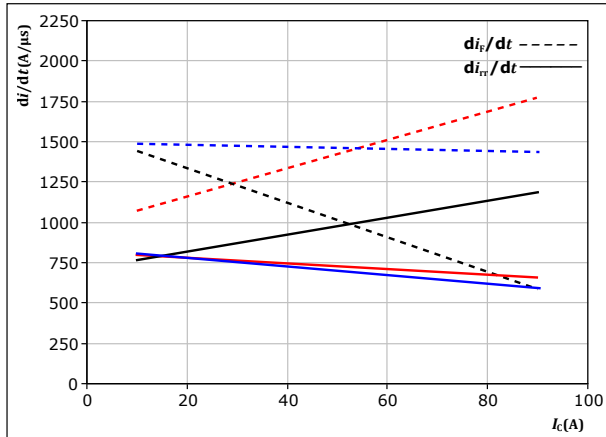
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datasheet

Boost Switching Characteristics

figure 25. FWD

Typical rate of fall of forward and reverse recovery current as a function of collector current
 $di_f/dt, di_r/dt = f(I_C)$



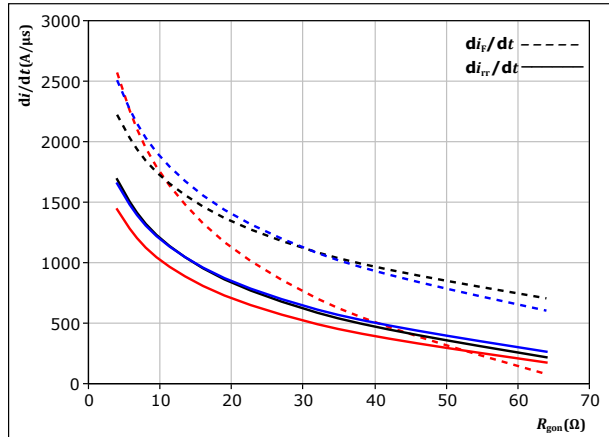
With an inductive load at

$V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $R_{gon} = 16$ Ω

T_j :
— 25 °C
— 125 °C
— 150 °C

figure 26. FWD

Typical rate of fall of forward and reverse recovery current as a function of turn on gate resistor
 $di_f/dt, di_r/dt = f(R_{gon})$



With an inductive load at

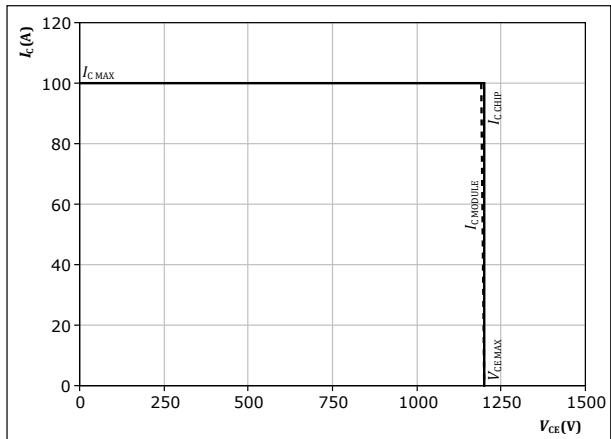
$V_{CE} = 700$ V
 $V_{GE} = 0/15$ V
 $I_C = 50$ A

T_j :
— 25 °C
— 125 °C
— 150 °C

figure 27. IGBT

Reverse bias safe operating area

$I_C = f(V_{CE})$



At $T_j = 150$ °C
 $R_{gon} = 16$ Ω
 $R_{goff} = 16$ Ω



Boost Switching Definitions

figure 28. IGBT

Turn-off Switching Waveforms & definition of t_{doff} , t_{Eoff} (t_{Eoff} = integrating time for E_{off})

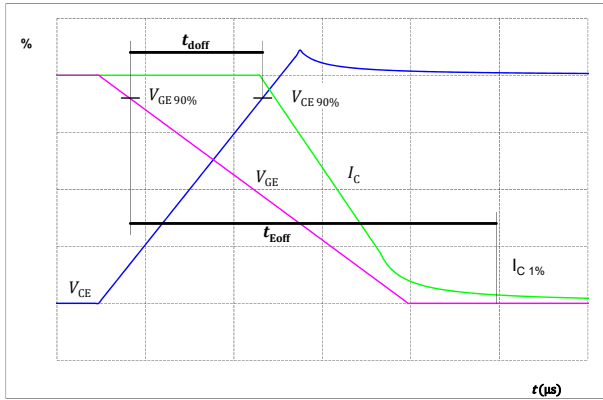


figure 29. IGBT

Turn-on Switching Waveforms & definition of t_{don} , t_{Eon} (t_{Eon} = integrating time for E_{on})

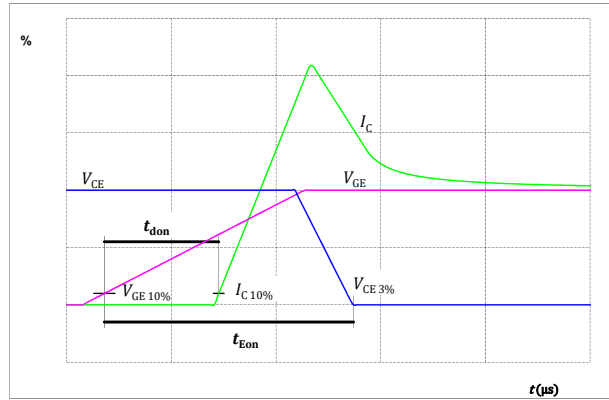


figure 30. IGBT

Turn-off Switching Waveforms & definition of t_f

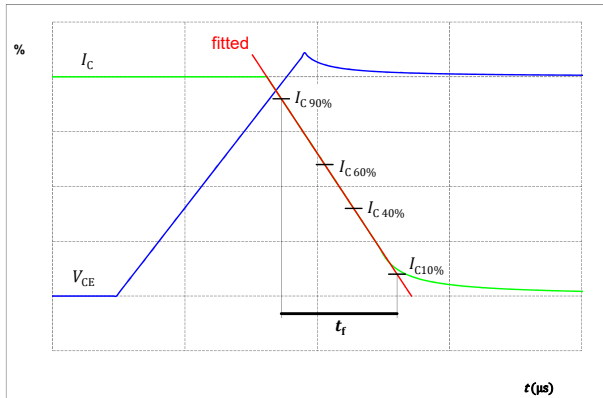
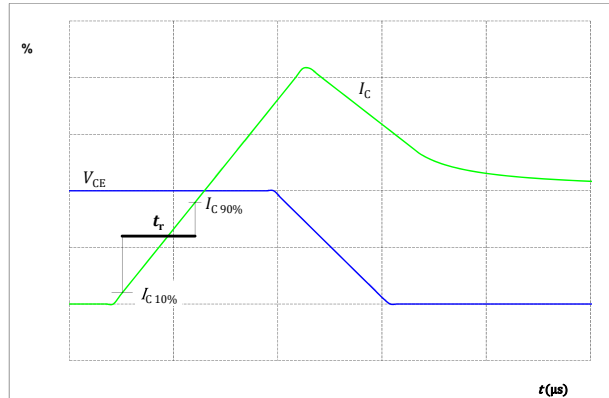


figure 31. IGBT

Turn-on Switching Waveforms & definition of t_r





Boost Switching Definitions

figure 32.

FWD

Turn-off Switching Waveforms & definition of t_{rr}

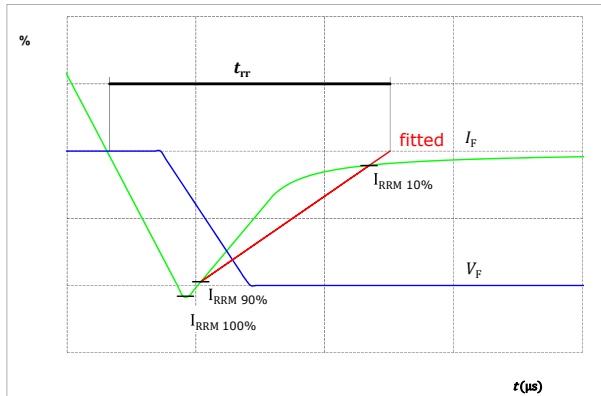
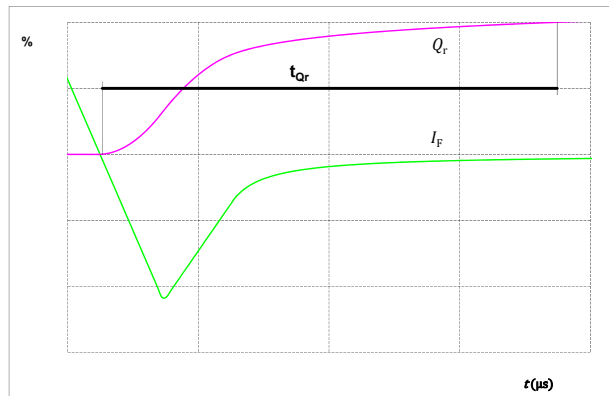


figure 33.

FWD

Turn-on Switching Waveforms & definition of t_{Qr} (t_{Qr} = integrating time for Q_r)





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V23990-P629-L57Y

datasheet

| Ordering Code | |
|--|----------------------|
| Version | Ordering Code |
| Without thermal paste | V23990-P629-L57Y |
| With thermal paste (5,2 W/mK, PTM6000HV) | V23990-P629-L57Y-/7/ |

| Marking | | | | | | | |
|---------|------------|----------|------------|----------|-----------|------|--------|
| | Text | VIN | Date code | Type&Ver | UL | Lot | Serial |
| | | VIN | WWYY | TTTTTIV | UL | LLLL | SSSS |
| | Datamatrix | Type&Ver | Lot number | Serial | Date code | | |
| | | TTTTTIV | LLLL | SSSS | WWYY | | |

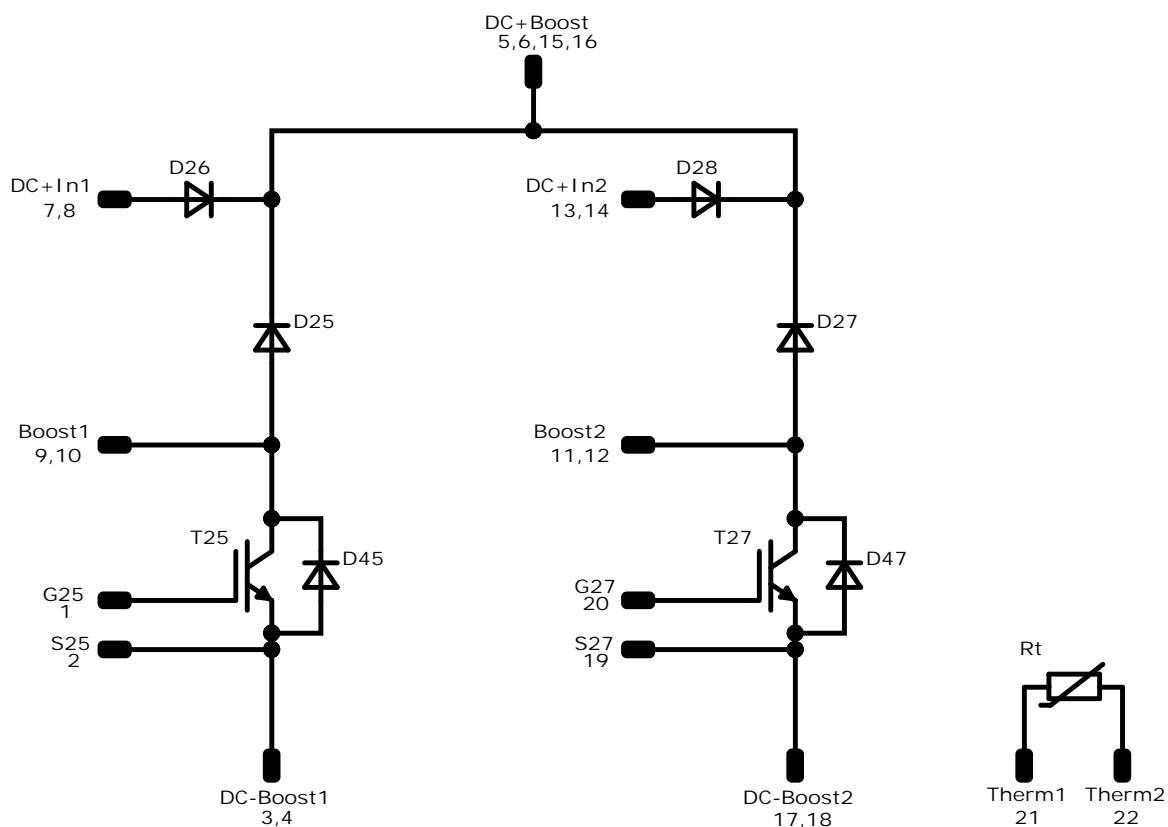
| Outline | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------|------|-----------|-----|---|---|----------|---|---|------|-----|---|-----|------|-----|---|-----|------|-----------|---|------|------|-----------|---|------|------|----------|---|------|------|----------|---|------|------|--------|---|----|------|--------|---|------|------|--------|----|------|------|--------|----|------|-----|--------|----|------|-----|--------|----|----|---|--------|----|------|---|--------|----|------|---|----------|----|------|---|----------|----|------|---|-----------|----|-----|---|-----------|----|-----|---|-----|----|---|---|-----|----|---|---|--------|----|---|------|--------|
| <p>Pin table [mm]</p> <table><tr><th>Pin</th><th>X</th><th>Y</th><th>Function</th></tr><tr><td>1</td><td>0</td><td>22,5</td><td>G25</td></tr><tr><td>2</td><td>2,9</td><td>22,5</td><td>S25</td></tr><tr><td>3</td><td>8,3</td><td>22,5</td><td>DC-Boost1</td></tr><tr><td>4</td><td>10,8</td><td>22,5</td><td>DC-Boost1</td></tr><tr><td>5</td><td>19,6</td><td>22,5</td><td>DC+Boost</td></tr><tr><td>6</td><td>22,1</td><td>22,5</td><td>DC+Boost</td></tr><tr><td>7</td><td>29,1</td><td>22,5</td><td>DC+In1</td></tr><tr><td>8</td><td>32</td><td>22,5</td><td>DC+In1</td></tr><tr><td>9</td><td>33,5</td><td>17,8</td><td>Boost1</td></tr><tr><td>10</td><td>33,5</td><td>15,3</td><td>Boost1</td></tr><tr><td>11</td><td>33,5</td><td>7,2</td><td>Boost2</td></tr><tr><td>12</td><td>33,5</td><td>4,7</td><td>Boost2</td></tr><tr><td>13</td><td>32</td><td>0</td><td>DC+In2</td></tr><tr><td>14</td><td>29,1</td><td>0</td><td>DC+In2</td></tr><tr><td>15</td><td>22,1</td><td>0</td><td>DC+Boost</td></tr><tr><td>16</td><td>19,6</td><td>0</td><td>DC+Boost</td></tr><tr><td>17</td><td>10,8</td><td>0</td><td>DC-Boost2</td></tr><tr><td>18</td><td>8,3</td><td>0</td><td>DC-Boost2</td></tr><tr><td>19</td><td>2,9</td><td>0</td><td>S27</td></tr><tr><td>20</td><td>0</td><td>0</td><td>G27</td></tr><tr><td>21</td><td>0</td><td>8</td><td>Therm1</td></tr><tr><td>22</td><td>0</td><td>14,5</td><td>Therm2</td></tr></table> | | | | Pin | X | Y | Function | 1 | 0 | 22,5 | G25 | 2 | 2,9 | 22,5 | S25 | 3 | 8,3 | 22,5 | DC-Boost1 | 4 | 10,8 | 22,5 | DC-Boost1 | 5 | 19,6 | 22,5 | DC+Boost | 6 | 22,1 | 22,5 | DC+Boost | 7 | 29,1 | 22,5 | DC+In1 | 8 | 32 | 22,5 | DC+In1 | 9 | 33,5 | 17,8 | Boost1 | 10 | 33,5 | 15,3 | Boost1 | 11 | 33,5 | 7,2 | Boost2 | 12 | 33,5 | 4,7 | Boost2 | 13 | 32 | 0 | DC+In2 | 14 | 29,1 | 0 | DC+In2 | 15 | 22,1 | 0 | DC+Boost | 16 | 19,6 | 0 | DC+Boost | 17 | 10,8 | 0 | DC-Boost2 | 18 | 8,3 | 0 | DC-Boost2 | 19 | 2,9 | 0 | S27 | 20 | 0 | 0 | G27 | 21 | 0 | 8 | Therm1 | 22 | 0 | 14,5 | Therm2 |
| Pin | X | Y | Function | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | 22,5 | G25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 2,9 | 22,5 | S25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 8,3 | 22,5 | DC-Boost1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 10,8 | 22,5 | DC-Boost1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 19,6 | 22,5 | DC+Boost | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 22,1 | 22,5 | DC+Boost | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 29,1 | 22,5 | DC+In1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 32 | 22,5 | DC+In1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 33,5 | 17,8 | Boost1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 33,5 | 15,3 | Boost1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 33,5 | 7,2 | Boost2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 33,5 | 4,7 | Boost2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 32 | 0 | DC+In2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 29,1 | 0 | DC+In2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 22,1 | 0 | DC+Boost | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | 19,6 | 0 | DC+Boost | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | 10,8 | 0 | DC-Boost2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | 8,3 | 0 | DC-Boost2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | 2,9 | 0 | S27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 0 | 0 | G27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 0 | 8 | Therm1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | 0 | 14,5 | Therm2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Vincotech

V23990-P629-L57Y
datasheet


Pinout



Identification

| ID | Component | Voltage | Current | Function | Comment |
|----------|-----------|---------|---------|----------------------------|---------|
| T25, T27 | IGBT | 1200 V | 50 A | Boost Switch | |
| D25, D27 | FWD | 1200 V | 20 A | Boost Diode | |
| D45, D47 | Rectifier | 1600 V | 25 A | Boost Sw. Protection Diode | |
| D26, D28 | Rectifier | 1600 V | 25 A | ByPass Diode | |
| Rt | NTC | | | Thermistor | |



| Packaging instruction | | | | |
|---|------|----------|------|---|
| Standard packaging quantity (SPQ) 135 | >SPQ | Standard | <SPQ | Sample |
| Handling instruction | | | | |
| Handling instructions for <i>flow 0</i> packages see vincotech.com website. | | | | |
| Package data | | | | |
| Package data for <i>flow 0</i> packages see vincotech.com website. | | | | |
| Vincotech thermistor reference | | | | |
| See Vincotech thermistor reference table at vincotech.com website. | | | | |
| UL recognition and file number | | | | |
| This device is UL 1557 recognized under E192116 up to a junction temperature under switching condition $T_{j,sp}=175^{\circ}\text{C}$ and up to 3500VAC/1min isolation voltage. For more information see vincotech.com website. | | | |  |

| Document No.: | Date: | Modification: | Pages |
|------------------------|-------------|---|-------|
| V23990-P629-L57Y-D4-14 | 7 May. 2025 | Change Boost Diode. See details in PCN-2025-001 | |

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.