

Transistor

Elektrische Eigenschaften

Höchstzulässige Werte

V_{CES}		1200	V
I_C		15	A
I_{CRM}	$t_p = 1 \text{ ms}$	30	A
P_{tot}	$t_C = 25^\circ\text{C}$	125	W
V_{GE}		20	V
V_{EG}		20	V

Charakteristische Werte

Characteristic values			
$V_{CE \text{ sat}}$	$i_{CM} = 15 \text{ A}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 3	V
	$i_{CM} = 15 \text{ A}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 4	V
$V_{GE} \text{ (th)}$	$V_{CE} = 5 \text{ V}, i_C = 15 \text{ mA}, t_{vj} = 25^\circ\text{C}$	min. 3	V
	$V_{CE} = 5 \text{ V}, i_C = 15 \text{ mA}, t_{vj} = 25^\circ\text{C}$	max. 6	V
C_{ies}	$V_{CE} = 10 \text{ V}, V_{GE} = 0 \text{ V}, f_o = 1 \text{ MHz}, t_{vj} = 25^\circ\text{C}$	typ. 2	nF
i_{CES}	$V_{CE} = 1200 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 0,2	mA
	$V_{CE} = 1200 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 125^\circ\text{C}$	typ. 1	mA
i_{GES}	$V_{GE} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 50	nA
	$V_{GE} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 500	nA
i_{EGS}	$V_{EG} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 50	nA
	$V_{EG} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 500	nA
t_{on}	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,4	μs
	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,5	μs
t_s	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,5	μs
	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,6	μs
t_f	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,2	μs
	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,25	μs

Bedingungen für den Kurzschlußschutz

$t_{rg} = 10 \mu\text{s},$
 $V_{LF} = V_{LR} = 15 \text{ V},$
 $R_G = 100 \Omega,$
 $t_{vj} = 125^\circ\text{C},$

Transistor

Electrical properties

Maximum rated values

	1200	V
	15	A
	30	A
	125	W
	20	V
	20	V

Characteristic values

Characteristic values			
$V_{CE \text{ sat}}$	$i_{CM} = 15 \text{ A}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 3	V
	$i_{CM} = 15 \text{ A}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 4	V
$V_{GE} \text{ (th)}$	$V_{CE} = 5 \text{ V}, i_C = 15 \text{ mA}, t_{vj} = 25^\circ\text{C}$	min. 3	V
	$V_{CE} = 5 \text{ V}, i_C = 15 \text{ mA}, t_{vj} = 25^\circ\text{C}$	max. 6	V
C_{ies}	$V_{CE} = 10 \text{ V}, V_{GE} = 0 \text{ V}, f_o = 1 \text{ MHz}, t_{vj} = 25^\circ\text{C}$	typ. 2	nF
i_{CES}	$V_{CE} = 1200 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 0,2	mA
	$V_{CE} = 1200 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 125^\circ\text{C}$	typ. 1	mA
i_{GES}	$V_{GE} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 50	nA
	$V_{GE} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 500	nA
i_{EGS}	$V_{EG} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 50	nA
	$V_{EG} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 500	nA
t_{on}	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,4	μs
	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,5	μs
t_s	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,5	μs
	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,6	μs
t_f	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,2	μs
	$i_{CM} = 15 \text{ A}, V_{CE} = 600 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 100 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,25	μs

Conditions for protection against short circuits

$V_{CC} = 750 \text{ V},$
 $V_{CEM} = 1000 \text{ V},$
 $i_{CMK1} \approx 150 \text{ A},$
 $i_{CMK2} \approx 100 \text{ A},$

Thermische Eigenschaften

 R_{thJC}

DC, pro Baustein / per module
 DC, pro Zweig / per arm

Thermal properties

0,167 $^\circ\text{C/W}$
 1 $^\circ\text{C/W}$

 $t_{vj \text{ max}}$ $t_{vj \text{ op}}$ t_{stg} 150 $^\circ\text{C}$ - 40 / + 150 $^\circ\text{C}$ - 40 / + 125 $^\circ\text{C}$

Inversdiode

Inverse diode

Elektrische Eigenschaften

Electrical properties

Höchstzulässige Werte

$I_{F(\text{max})}$		15 A
I_{FRM}	$t_p = 1 \text{ ms}$	30 A

Charakteristische Werte

Characteristic values			
V_F	$i_F = 15 \text{ A}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 1,8	V
	$i_F = 15 \text{ A}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 2,5	V
I_{RM}	$i_{FM} = 15 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}$ $V_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 7	A
	$i_{FM} = 15 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}$ $V_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$	typ. 12	A
Q_r	$i_{FM} = 15 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}$ $V_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 0,8	μAs
	$i_{FM} = 15 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}$ $V_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$	typ. 2,5	μAs

Thermische Eigenschaften

 R_{thJC}

DC, pro Baustein / per module
 DC, pro Zweig / per arm

Thermal properties

0,3 $^\circ\text{C/W}$
 1,8 $^\circ\text{C/W}$

 $t_{vj \text{ max}}$ $t_{vj \text{ op}}$ t_{stg} 125 $^\circ\text{C}$ - 40 / + 125 $^\circ\text{C}$ - 40 / + 125 $^\circ\text{C}$

Innere Isolation

Isoliermaterial: Al N

 V_{ISOL} RMS ($f=50 \text{ Hz}, t=1 \text{ min}$)

Internal insulation

Insulating material: Al N

2,5 kV

Mechanische Eigenschaften

Mechanical properties

G

225 g

M 1

3 Nm

Maßbild
 Seite 183, Nr. 7

outline
 page 183, no. 7