SKiiP 29ANB08V1

MiniSKiiP® 2

3-phase bridge rectifier + brake chopper

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Features

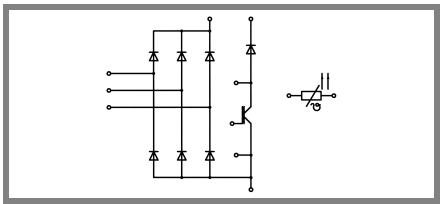
- Ultrafast NPT IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Input bridge for Inverter up to 30 kVA

Remarks

- V_{CEsat} , V_F= chip level value



ANB

Absolute Maximum Ratings		T_s = 25 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
IGBT - Chopper			
V_{CES}		600	V
I_C	T_s = 25 (70) °C	125 (93)	A
I_{CRM}	$t_p \leq$ 1 ms	300	A
V_{GES}		± 15	V
T_j		- 40 ... + 150	°C
Diode - Chopper			
I_F	T_s = 25 (70) °C	120 (89)	A
I_{FRM}	$t_p \leq$ 1 ms	300	A
T_j		- 40 ... + 150	°C
Diode - Rectifier			
V_{RRM}		800	V
I_F	T_s = 70 °C	83	A
I_{FSM}	t_p = 10 ms, sin 180 °, T_j = 25 °C	1000	A
i^2t	t_p = 10 ms, sin 180 °, T_j = 25 °C	6600	A^2s
T_j		- 40 ... + 150	°C
I_{tRMS}	per power terminal (20 A / spring)	120	A
T_{stg}	$T_{op} \leq T_{stg}$	- 40 ... + 125	°C
V_{isol}	AC, 1 min.	2500	V

Characteristics		T_s = 25 °C, unless otherwise specified			
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT - Chopper					
V_{CEsat}	I_{Cnom} = 150 A, T_j = 25 (125) °C		2 (2,2)	2,5 (2,7)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, I_C = 1,5 mA	3	4	5	V
$V_{CE(TO)}$	T_j = 25 (125) °C		1,2 (1,1)	1,3 (1,2)	V
r_T	T_j = 25 (125) °C		5,3 (7,3)	8 (10)	mΩ
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		9		nF
C_{oes}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		1,7		nF
C_{res}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		2,1		nF
$R_{th(j-s)}$	per IGBT		0,4		K/W
$t_{d(on)}$	under following conditions		20		ns
t_r	V_{CC} = 300 V, V_{GE} = ± 15 V		25		ns
$t_{d(off)}$	I_{Cnom} = 150 A, T_j = 125°C		185		ns
t_f	$R_{Gon} = R_{Goff}$ = 4 Ω		15		ns
E_{on}	inductive load		5,7		mJ
E_{off}			3,7		mJ
Diode - Chopper					
$V_F = V_{EC}$	I_{Fnom} = 150 A, T_j = 25 (125) °C		1,7 (1,7)	2,1 (2,1)	V
$V_{(TO)}$	T_j = 25 (125) °C		1 (0,9)	1,1 (1)	V
r_T	T_j = 25 (125) °C		4,7 (5,3)	6,7 (7,3)	mΩ
$R_{th(j-s)}$	per diode		0,55		K/W
I_{RRM}	under following conditions		270		A
Q_{rr}	I_{Fnom} = 150 A, V_R = 300 V		18		µC
E_{rr}	V_{GE} = 0 V, T_j = 125 °C		3,5		mJ
	di_F/dt = 13700 A/µs				
Diode - Rectifier					
V_F	I_{Fnom} = 75 A, T_j = 25 °C		1,2		V
$V_{(TO)}$	T_j = 150 °C		0,8		V
r_T	T_j = 150 °C		7		mΩ
$R_{th(j-s)}$	per diode		0,7		K/W
Temperature Sensor					
R_{ts}	3 %, T_r = 25 (100) °C		1000(1670)		Ω
Mechanical Data					
w			65		g
M_s	Mounting torque	2		2,5	Nm

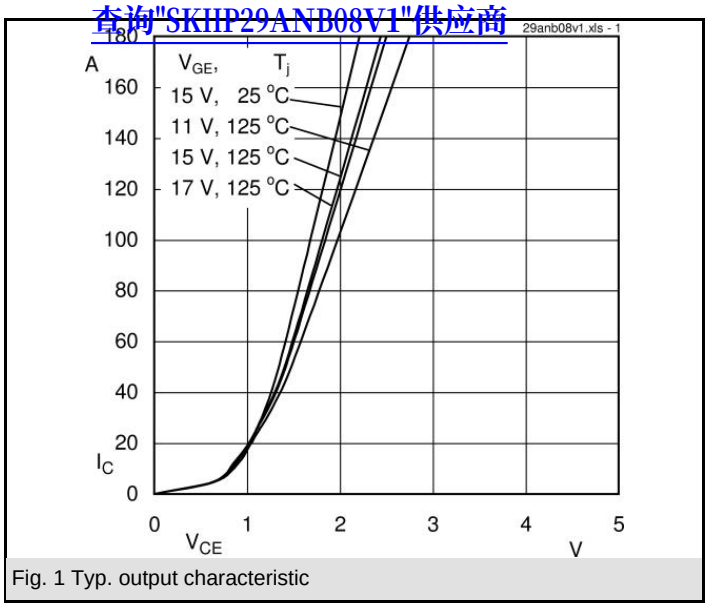


Fig. 1 Typ. output characteristic

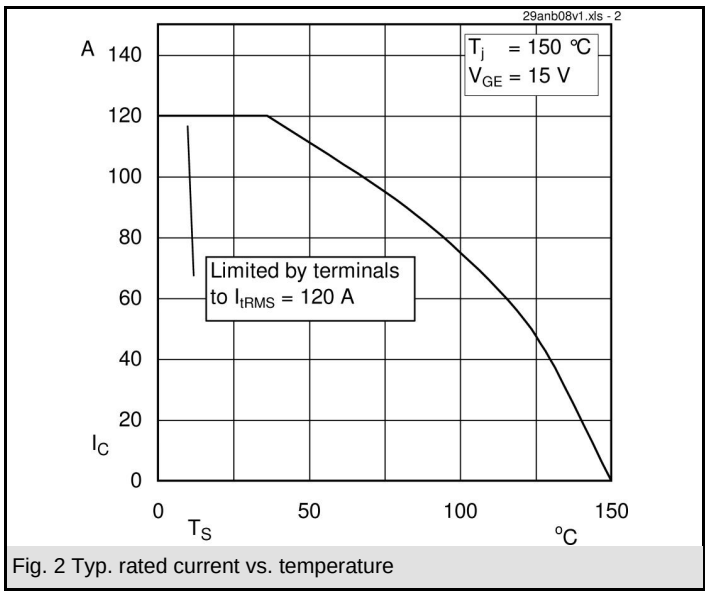


Fig. 2 Typ. rated current vs. temperature

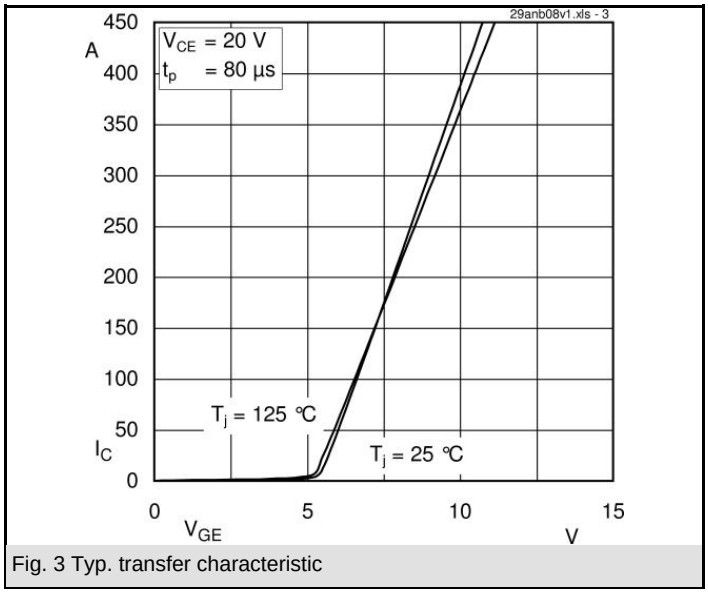


Fig. 3 Typ. transfer characteristic

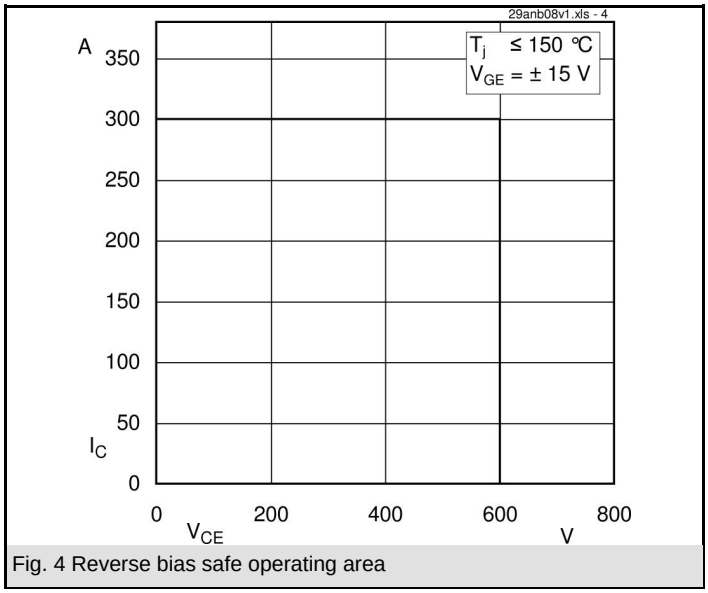


Fig. 4 Reverse bias safe operating area

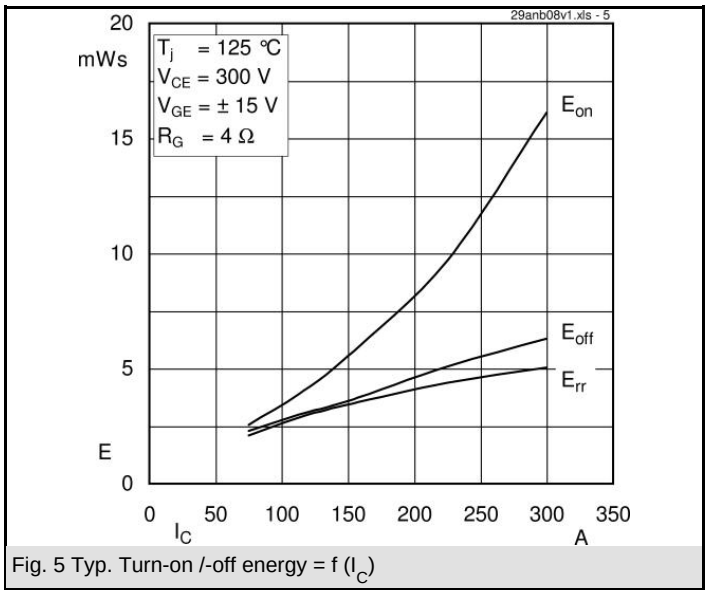


Fig. 5 Typ. Turn-on /-off energy = f (I_C)

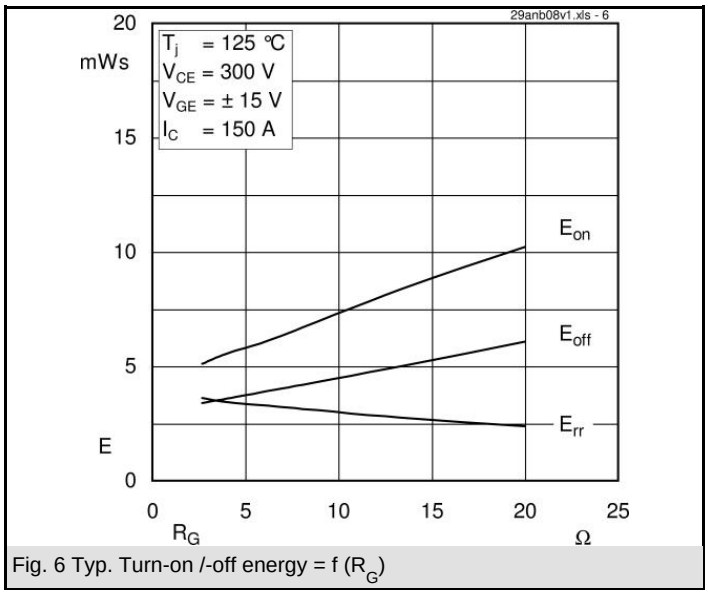


Fig. 6 Typ. Turn-on /-off energy = f (R_G)

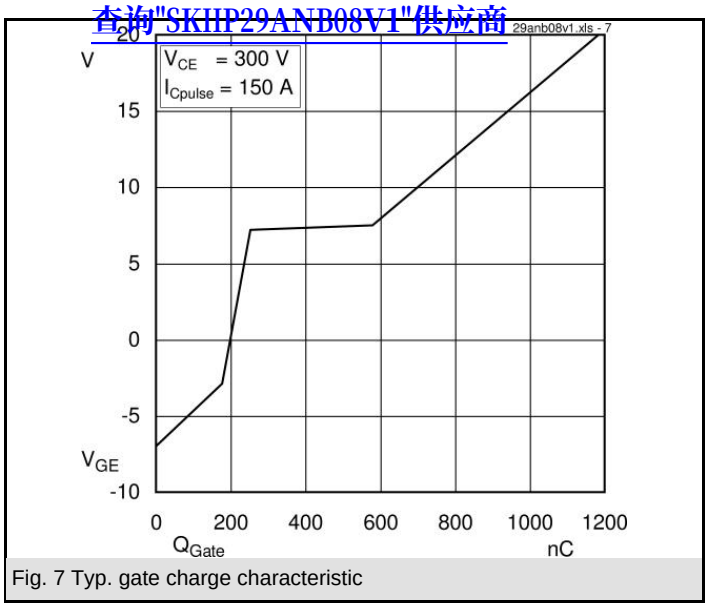


Fig. 7 Typ. gate charge characteristic

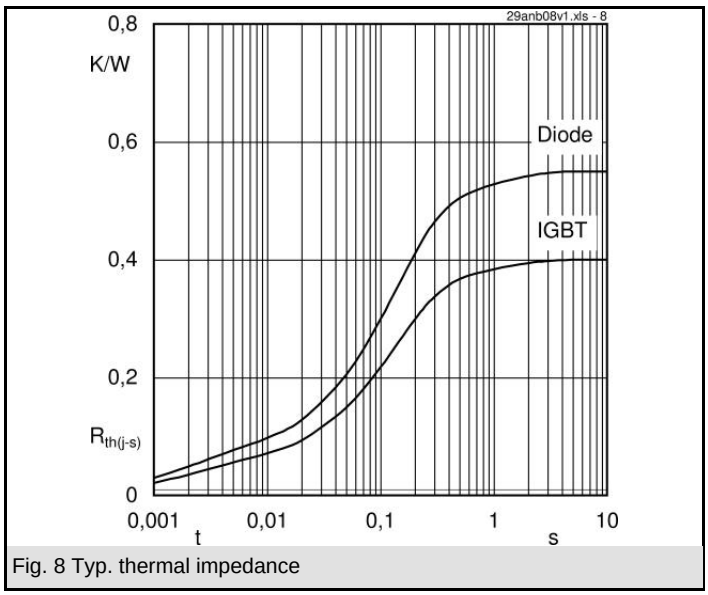


Fig. 8 Typ. thermal impedance

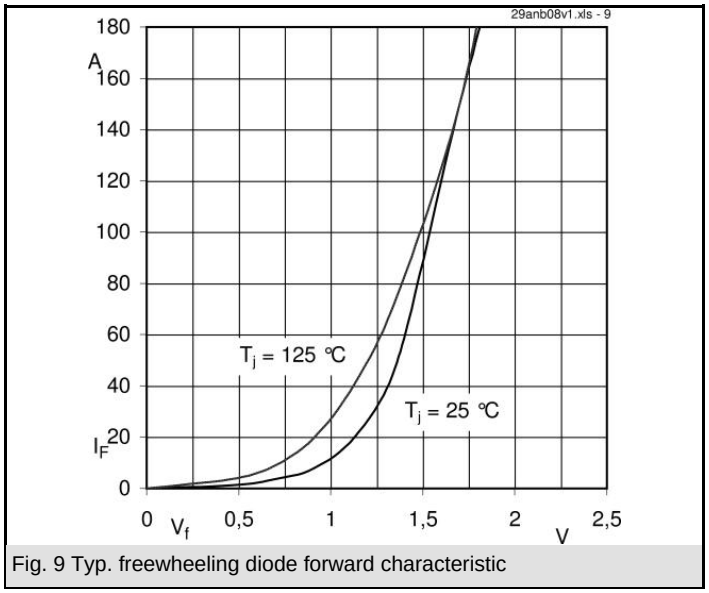


Fig. 9 Typ. freewheeling diode forward characteristic

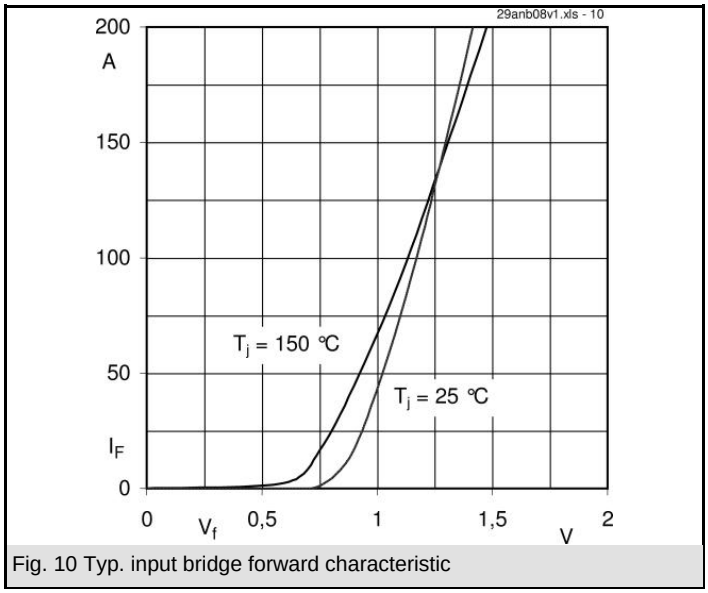
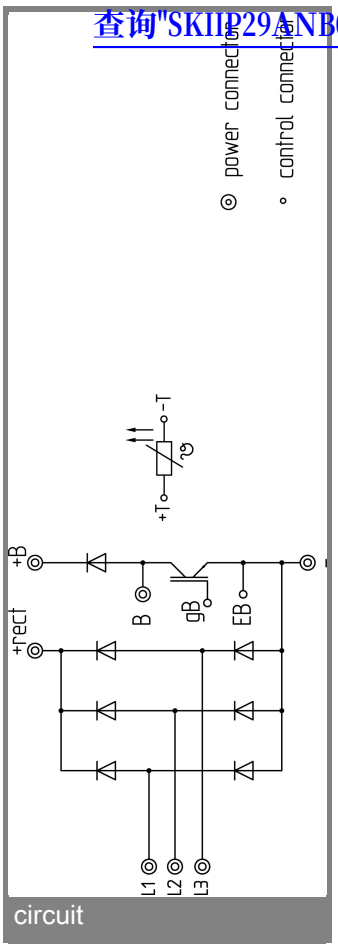
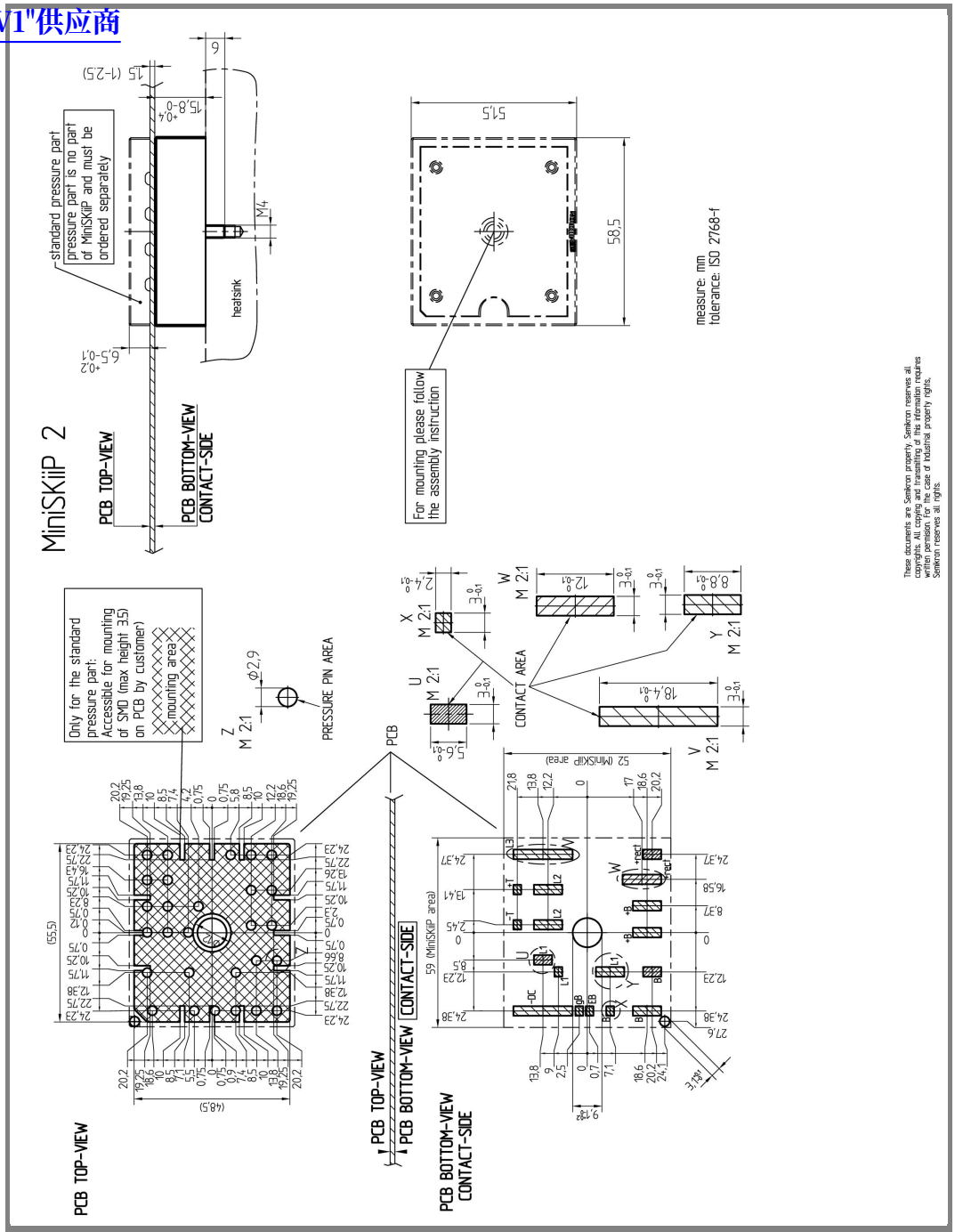


Fig. 10 Typ. input bridge forward characteristic



circuit



pinout, dimensions

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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