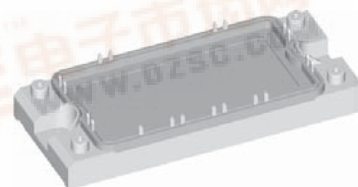
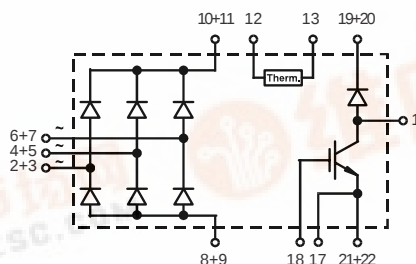


Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

$$\begin{aligned} V_{\text{RRM}} &= 1600 \text{ V} \\ I_{\text{dAVM}} &= 116/145 \text{ A} \end{aligned}$$

V_{RRM} V	Type
1600	VUB 116-16 NO1
1600	VUB 145-16 NO1



Symbol	Conditions	Maximum Ratings		
		VUB 116	VUB 145	
V_{RRM}	Rectifier Diodes	1600	1600	
I_{dAVM}		116	145	
I_{FSM}		$T_{VJ} = 45^{\circ}\text{C}$, $t = 10\text{ ms}$, $V_R = 0\text{ V}$	650	900
		$T_{VJ} = 150^{\circ}\text{C}$, $t = 10\text{ ms}$, $V_R = 0\text{ V}$	570	780
I^2t	$T_{VJ} = 45^{\circ}\text{C}$, $t = 10\text{ ms}$, $V_R = 0\text{ V}$	2110	4050	
	$T_{VJ} = 150^{\circ}\text{C}$, $t = 10\text{ ms}$, $V_R = 0\text{ V}$	1620	3040	
P_{tot}	$T_C = 25^{\circ}\text{C}$ per diode	190	250	
V_{CES}	IGBT	$T_{VJ} = 25^{\circ}\text{C}$ to 150°C	1200	
V_{GE}		Continuous	± 20	
I_{C25}	IGBT	$T_C = 25^{\circ}\text{C}$, DC	95	
I_{C80}		$T_C = 80^{\circ}\text{C}$, DC	67	
I_{CM}	$t_p =$ Pulse width limited by T_{VJM}	100	150	
P_{tot}	$T_C = 25^{\circ}\text{C}$	380	570	
V_{RRM}	Fast Recovery Diode	1200		
I_{FAV}		$T_C = 80^{\circ}\text{C}$, rectangular $d = 0.5$	27	
I_{FRMS}		$T_C = 80^{\circ}\text{C}$, rectangular $d = 0.5$	38	
I_{FRM}		$T_C = 80^{\circ}\text{C}$, $t_p = 10\text{ }\mu\text{s}$, $f = 5\text{ kHz}$	tbd	
I_{FSM}	$T_{VJ} = 45^{\circ}\text{C}$, $t = 10\text{ ms}$	200		
P_{tot}	$T_C = 25^{\circ}\text{C}$	130		
T_{VJ}	Module	-40...+150	$^{\circ}\text{C}$	
T_{VJM}		150	$^{\circ}\text{C}$	
T_{stg}		-40...+125	$^{\circ}\text{C}$	
V_{ISOL}		50/60 Hz, $t = 1\text{ min}$	2500	V~
M_d	$I_{ISOL} \leq 1\text{ mA}$, $t = 1\text{ s}$	3000	V~	
	Mounting torque	2.25...2.75 20...25	Nm lb.in.	
d_s	Creep distance on surface	12.7	mm	
d_A	Strike distance in air	9.6	mm	
a	Maximum allowable acceleration	50	m/s ²	
Weight	typ.	180	g	

Features

- Soldering connections for PCB mounting
- Convenient package outline
- Thermistor

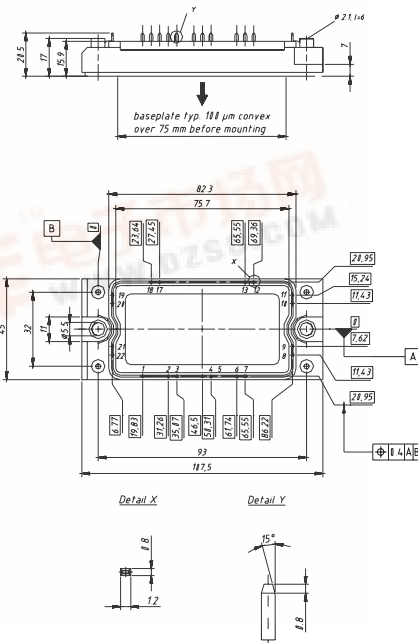
Applications

- Drive Inverters with brake system

Advantages

- 2 functions in one package
- Easy to mount with two screws
- Suitable for wave soldering
- High temperature and power cycling capability

Dimensions in mm (1 mm = 0.0394")



Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
I_R	$V_R = V_{RRM}, T_{VJ} = 25^{\circ}\text{C}$ $V_R = V_{RRM}, T_{VJ} = 150^{\circ}\text{C}$			0.1 mA 2 mA
V_F	$I_F = 80\text{ A}, T_{VJ} = 25^{\circ}\text{C}$ $I_F = 150\text{ A}, T_{VJ} = 25^{\circ}\text{C}$	VUB 116 VUB 145		1.43 V 1.68 V
V_{T0}	for power-loss calculations only	VUB 116 VUB 145		0.85 V 0.85 V
r_T	$T_{VJ} = 150^{\circ}\text{C}$	VUB 116 VUB 145		7.1 m Ω 5.9 m Ω
R_{thJC}	per diode	VUB 116 VUB 145		0.65 K/W 0.5 K/W
R_{thCH}		VUB 116 VUB 145		0.1 K/W 0.1 K/W
$V_{BR(CES)}$	$V_{GS} = 0\text{ V}, I_C = 0.1\text{ mA}$	1200		V
$V_{GE(th)}$	$I_C = 8\text{ mA}$ $I_C = 3\text{ mA}$	VUB 116 VUB 145	4.5 4.5	6.45 V 6.45 V
I_{CES}	$T_{VJ} = 25^{\circ}\text{C}, V_{CE} = 1200\text{ V}$ $T_{VJ} = 125^{\circ}\text{C}, V_{CE} = 0.8 \cdot V_{CES}$			0.1 mA 0.5 mA
V_{CEsat}	$V_{GE} = 15\text{ V}, I_C = 100\text{ A}$ $V_{GE} = 15\text{ V}, I_C = 150\text{ A}$	VUB 116 VUB 145		3.5 V 3.7 V
$t_{SC}(SCSOA)$	$V_{GE} = 15\text{ V}, V_{CE} = 720\text{ V}, T_{VJ} = 125^{\circ}\text{C}$,			10 μs
RBSOA	$V_{GE} = 15\text{ V}, V_{CE} = 1200\text{ V}, T_{VJ} = 125^{\circ}\text{C}$, clamped inductive load, $L = 100\text{ }\mu\text{H}$ $R_G = 22\text{ }\Omega$ $R_G = 15\text{ }\Omega$	VUB 116 VUB 145		100 A 150 A
C_{ies}	$V_{CE} = 25\text{ V}, f = 1\text{ MHz}, V_{GE} = 0\text{ V}$	VUB 116 VUB 145	3.8 5.7	nF nF
$t_{d(on)}$	$V_{CE} = 720\text{ V}, I_C = 50/75\text{ A}$ $V_{GE} = 15\text{ V}, R_G = 32/15\text{ }\Omega$ Inductive load; $L = 100\text{ }\mu\text{H}$ $T_{VJ} = 125^{\circ}\text{C}$	VUB 116 VUB 145 VUB 116 VUB 145	150 680	ns ns
$t_{d(off)}$			6	mJ
E_{on}			9	mJ
E_{off}			5 7.5	mJ mJ
R_{thJC}		VUB 116 VUB 145		0.33 K/W 0.22 K/W
R_{thJH}		VUB 116 VUB 145		0.66 K/W 0.44 K/W
I_R	$V_R = V_{RRM}, T_{VJ} = 25^{\circ}\text{C}$ $V_R = 1200\text{ V}, T_{VJ} = 125^{\circ}\text{C}$		1	0.25 mA mA
V_F	$I_F = 30\text{ A}, T_{VJ} = 25^{\circ}\text{C}$			2.76 V
V_{T0}	For power-loss calculations only			1.3 V
r_T	$T_{VJ} = 150^{\circ}\text{C}$			16 m Ω
I_{RM}	$I_F = 50\text{ A}, -di_F/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$		5.5	11 A
t_{rr}	$I_F = 1\text{ A}, -di_F/dt = 200\text{ A}/\mu\text{s}, V_R = 30\text{ V}$		40	ns
R_{thJC}				0.9 K/W
R_{thCH}				0.1 K/W
R_{25}		4.75	5.0	5.25 k Ω
$B_{25/50}$			3375	K