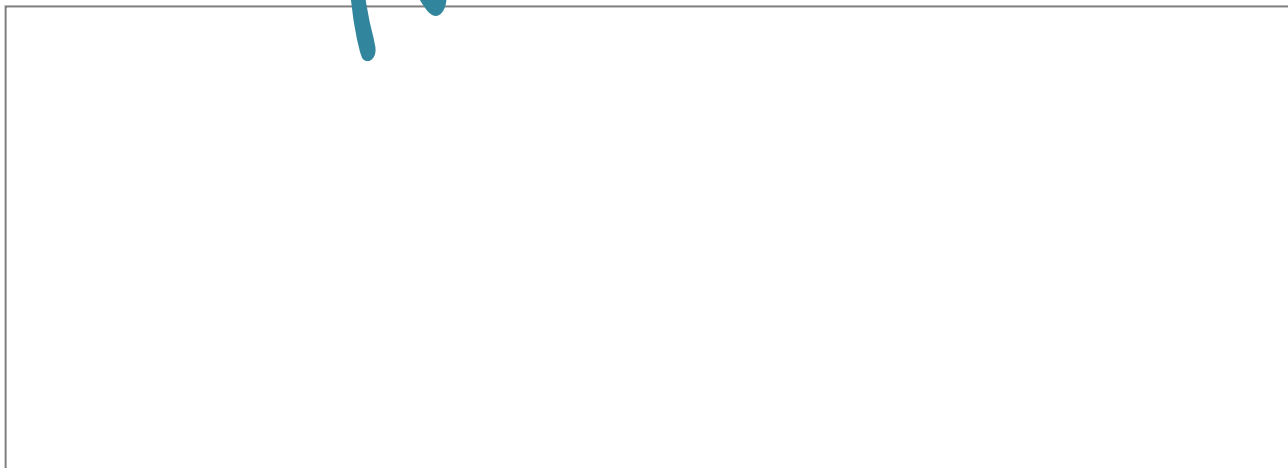


## TECA110, \_129, \_140, \_149 SCR MODULES

### Preliminary Data Sheet

- ▶ Extremely high power density
- ▶ Line voltage range up to 1200 V<sub>RMS</sub>
- ▶ High reliability
- ▶ Modularity
- ▶ User friendly assembly and maintenance
- ▶ Cost effective solution
- ▶ Suitable for heavy duty applications



#### Maximum Ratings

Part number	TECA110	TECA129	TECA140	TECA149	Conditions	Units
$I_{T(AV)}$	1100	1290	1400	1490	180° cond, half sine Ta = 40 °C Air velocity = 7.5 m/s	A
$I_{T(RMS)}$	1727	2025	2198	2339		A
$I_{TSM}$	27	38	38	44	50 Hz, Tj = Tjmax, VR = 0 V	kA
$I_{TSM}$	28.5	40.1	40.1	46.4	60 Hz, Tj = Tjmax, VR = 0 V	kA
$I^2t$	3645	7220	7220	9680	50 Hz, Tj = Tjmax, VR = 0 V	kA <sup>2</sup> s
$I^2t$	3317	6570	6570	8809	60 Hz, Tj = Tjmax, VR = 0 V	kA <sup>2</sup> s
V <sub>DRM</sub> /V <sub>RRM</sub>	4400	2800	2200	1800	Tj = Tjmax	V
Tjmax	125	125	135	125		°C

Part Number	V code	VDRM VRRM max repetitive reverse and off-state blocking voltage [V]	IDRM IRRM @ Tjmax [mA]	VL(RMS) maximum suggested RMS line voltage [V]
<b>TECA149</b>	12	1200	200	400
	16	1600	200	500
	18	1800	200	550
<b>TECA140</b>	22	2200	200	690
<b>TECA129</b>	28	2800	200	800
<b>TECA110</b>	34	3400	200	900
	44	4400	200	1200

**On-State Characteristics**

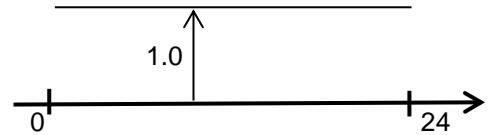
Parameters		TECA110	TECA129	TECA140	TECA149	Conditions	Units
V <sub>T(TO)</sub>	Threshold voltage	1.05	0.85	0.85	0.85	T <sub>j</sub> = T <sub>jmax</sub>	V
r <sub>T</sub>	On-state slope resistance	0.25	0.20	0.20	0.12	T <sub>j</sub> = T <sub>jmax</sub>	mΩ
I <sub>H</sub>	Holding current, max	300	300	300	300	T <sub>j</sub> = 25°C	mA
I <sub>L</sub>	Latching current, typ	1500	1500	1500	1500	T <sub>j</sub> = 25°C	mA
P <sub>MAX</sub>	Max power losses	3864	3864	4318	3864	T <sub>A</sub> = 40°C	W

**Triggering Characteristics**

Parameters		TECA110	TECA129	TECA140	TECA149	Conditions	Units
V <sub>GT</sub>	Gate trigger voltage	3	3	3	3	T <sub>j</sub> = 25°C, V <sub>D</sub> = 5V	V
I <sub>GT</sub>	Gate trigger current	300	300	300	300	T <sub>j</sub> = 25°C, V <sub>D</sub> = 5V	mA
P <sub>GM</sub>	Peak gate power dissipation	10	10	10	10	Pulse width 1 ms	W
P <sub>G(AV)</sub>	Average gate power dissipation	5	5	5	5		W
I <sub>FGM</sub>	Peak gate current	3	3	3	3		A
V <sub>FGM</sub>	Peak gate voltage (forward)	20	20	20	20		V
V <sub>RGM</sub>	Peak gate voltage (reverse)	5	5	5	5		V

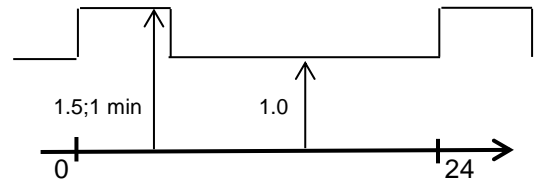
**Switching Characteristics**

Parameters		TECA110	TECA129	TECA140	TECA149	Conditions	Units
di/dt	Critical rate of rise of on-state current	200	200	200	200	T <sub>j</sub> = T <sub>jmax</sub>	A/μs
dV/dt	Critical rate of rise of off-state voltage	1000	1000	1000	1000	T <sub>j</sub> = T <sub>jmax</sub>	V/μs
t <sub>q</sub>	Turn-off time, typ	600	400	350	250	T <sub>j</sub> =T <sub>jmax</sub> , I <sub>T</sub> =1000A di/dt=-10A/μs V <sub>R</sub> =50V dV/dt=20V/μs	μs



### Maximum IEC class 1 currents for typical circuit type

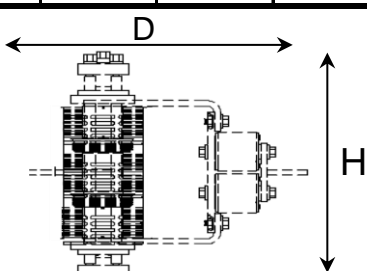
Circuit Type	TECA110	TECA129	TECA140	TECA149	Conditions	Units
AC switch	2457	2882	3128	3329	Ta = 40 °C Air velocity = 7.5 m/s	A
	2200	2580	2800	2980		A
Two pulse regen bridge	2200	2580	2800	2980		A
Six pulse regen bridge	3125	3625	3900	4227		A



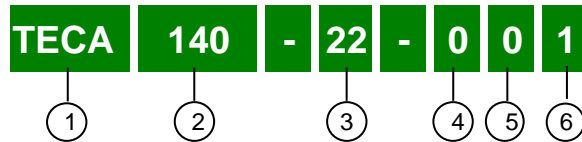
### Maximum IEC class 2 currents for typical circuit type

Circuit Type	TECA110	TECA129	TECA140	TECA149	Conditions	Units
AC switch	2820	3284	3541	3796	TA = 40 °C delay angle = 0°	A
					TA = 40 °C delay angle = 0°	A
Two pulse bridge	2525	2940	3170	3398		
Six pulse bridge	3554	4121	4440	4815		

### Thermal and mechanical characteristics

Parameters	TECA110	TECA129	TECA140	TECA149	Conditions	Units
T <sub>jmax</sub> Max operating junction temperature	125	125	135	125		°C
T <sub>stg</sub> Storage temperature	-40 +70	-40 +70	-40 +70	-40 +70		°C
R <sub>thJA</sub> Thermal resistance (junction to ambient)	0.044	0.044	0.044	0.044	Air velocity = 7.5 m/s	°C/W
F Mounting torque -	14	14	14	14	Busbar	N·m
F Mounting torque -	14	14	14	14	M8 captive nut	N·m
<b>Overall dimensions</b>						
D Depth	486					mm
H Height	431					mm
W Width	170					mm
m Mass	34.5					kg

## PART-NUMBERING SYSTEM



- ① Circuit configuration = AC-switch
- ② Average current / 10
- ③ Blocking voltage / 100
- ④ 0 = No fuse - 1 = with fuse for regen application
- ⑤ 0 = no blown-fuse microswitch
- ⑥ 0 = No snubber - 1 = one RC snubber - 2 = two RC snubber  
R = one snubber resistor - S = two snubber resistor