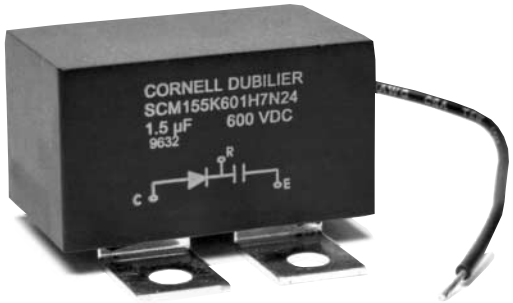
Type SCM, Single/Dual IGBT Snubber Capacitor Modules



Applications

Use style SCM as a discharge restrictive de-coupling to protect dual IGBT modules from overvoltage, Figure 1. Style SCM may also be used as an "N" or "P" type snubber component for a clamp snubber where single IGBT modules are used, Figure 2.

Highlights

- Mount directly to the IGBT module
- Low inductance
- Low Loss
- Hyperfast diodes integrated into package
- 1 or 2 wire taps for connecting external resistor
- Flame resistant case and epoxy, meets UL 94VO
- Other terminal pitches and capacitance values available.

Discharge Restrictive De-coupling

The circuit in Figure 1 operates on the same principles as the de-coupling capacitor, but only during turn-off switching. As the IGBT turns off, energy trapped in the loop inductance is transferred to the capacitor. The diode blocks oscillations from occurring and excess charge on the capacitor is discharged through the external resistor.

RCD Clamp

The function of this snubber is similar to a clamp, Figure 2. At turn-off, the snubber diode is forward biased and the snubber is activated. The energy trapped in the stray inductance is absorbed by the snubber capacitor. During turn-on the snubber caps that were fully charged to bus voltage have a discharge path through the forward biased free-wheel diode, the IGBT, and the snubber resistors. This reduces the reverse recovery voltage transient.

Figure 1
Style SCM Discharge restrictive decoupling used to protect dual IGBT modules

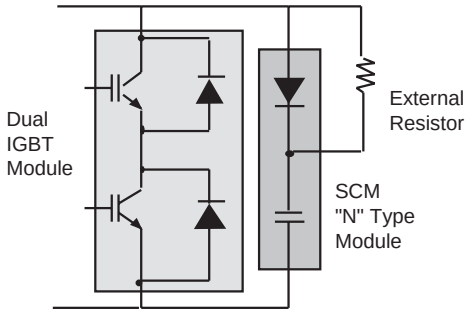
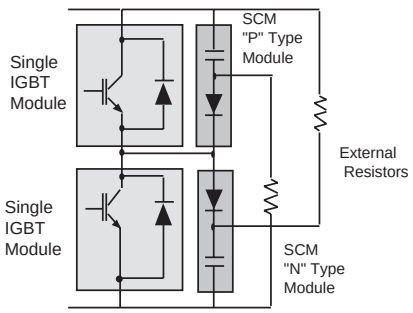


Figure 2
Style SCM "P" type and "N" type used as a clamp to protect an inverter using two "single" IGBT modules.



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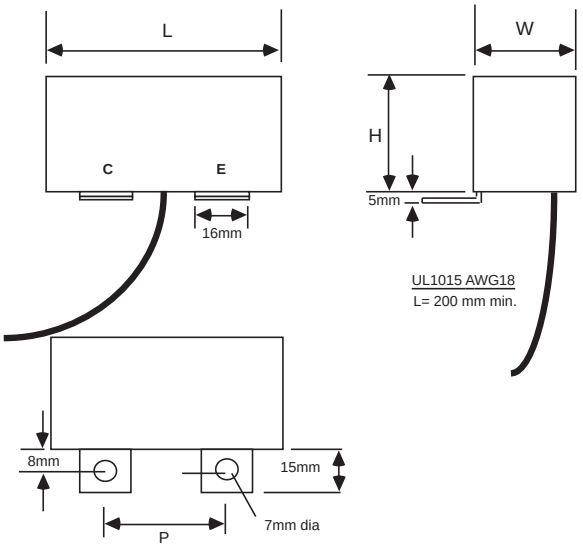
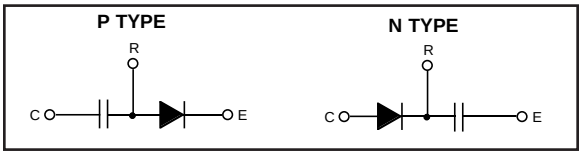
Type SCM, Single/Dual IGBT Snubber Capacitor Modules



Part Number	Cap µF	Typical Application IGBT Module Ic/Vce S=Single, D=Dual	Diode Characteristics Vrrm/If/trr(µs)	Ipk(A), Tc = 25°C Ipk(A) Surge Tc = 25°C	Ipk(A), Tc = 25°C Repetitive 20 kHz Sq Wave	Dimensions (in.) W	L	H	P(mm)
SCM474K601H7N29	0.47	200S-300S/600	600/30/<.040	300	70	1.725	2.200	1.340	29
SCM474K601H7P29	0.47	200S-300S/600	600/30/<.040	300	70	1.725	2.220	1.340	29
SCM105K601H7[ ]24	1.0	100D-200D/600	600/30/<.040	300	70	1.500	1.875	1.250	24
SCM105K601H5[ ]29	1.0	300S-400S/600	600/50/<.045	500	100	1.825	2.225	1.500	29
SCM155K601H7N24	1.5	200D-300D/600	600/30/<.040	300	70	1.350	2.200	1.200	24
SCM155K601H7P24	1.5	200D-300D/600	600/30/<.040	300	70	1.500	1.875	1.250	24
SCM205K601H5[ ]24	2.0	300D-400D/600	600/50/<.045	500	100	1.725	2.220	1.340	24
SCM205K601H2[ ]29	2.0	400S-600S/600	600/100/<.050	1000	200	1.825	2.225	1.500	29
SCM474K122H8N29	0.47	200S-300S/1200	1200/30/<.065	300	60	1.350	2.200	1.200	29
SCM474K122H8P29	0.47	200S-300S/1200	1200/30/<.065	300	60	1.500	1.875	1.250	29
SCM105K122H8[ ]24	1.0	100D-200D/1200	1200/30/<.065	300	60	1.750	2.500	1.470	24
SCM105K122H4N29	1.0	300S-400S/1200	1200/50/<.085	500	100	1.725	2.200	1.340	29
SCM105K122H4P29	1.0	300S-400S/1200	1200/50/<.085	500	100	1.825	2.225	1.500	29
SCM155K122H8N24	1.5	200D-300D/1200	1200/30/<.065	300	60	1.750	2.500	1.470	24
SCM155K122H8P24	1.5	200D-300D/1200	1200/30/<.065	300	60	1.825	2.225	1.500	24
SCM205K122H4[ ]24	1.5	300D-400D/1200	1200/50/<.065	500	100	2.125	2.500	1.700	24
SCM205K122H1[ ]29	2.0	400S-600S/1200	1200/100/<.090	1000	200	2.125	2.500	1.700	29

Specify "N" type or "P" type



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