

**Small IPM X-series P642 package**

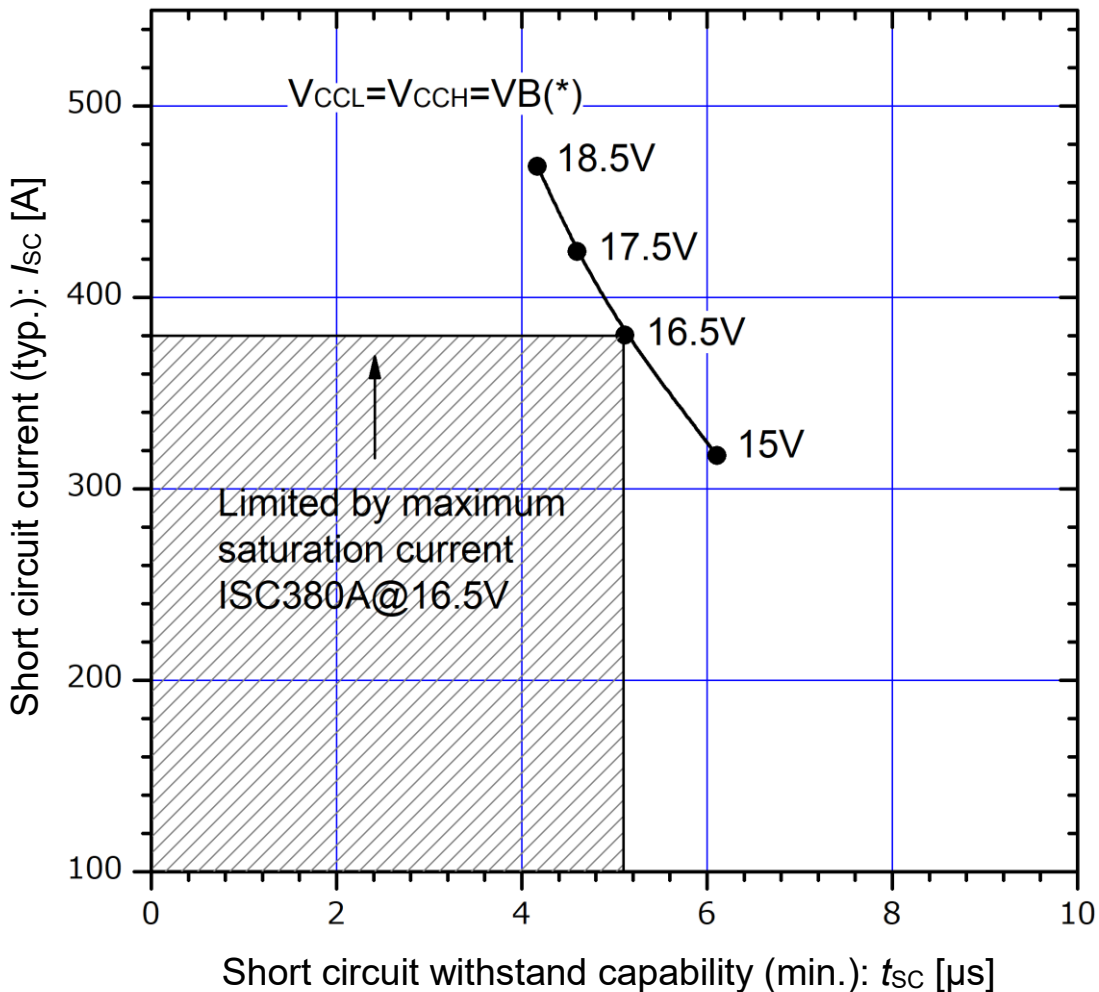
**Short circuit withstand capability and SCSOA**

Type name: 6MBP50XTA065-50, 6MBP50XTC065-50

Conditions:  $V_{DC}=400V$ ,  $T_{vj}=125^{\circ}C$  start, non-repetitive pulse

This document shows  $t_{SC}$  dependency on  $I_{SC}$  by each control circuit voltage  $V_{CCL}$  or  $V_{CCH}$ . In the case of  $V_{CCL}=V_{CCH}=VB(^*)=16.5V$ , 6MBP50XTA(C)065-50 can safely shut down short circuit current that is about 7 times of its current rating under the conditions only if the IGBT conducting period is less than  $5.1\mu s$ . Since the SCSOA area varies depending on the input voltage  $V_{DC}$ , control circuit voltage  $V_{CCL}$  or  $V_{CCH}$ , virtual junction temperature  $T_{vj}$ , etc., please be careful to design with a suitable margin.

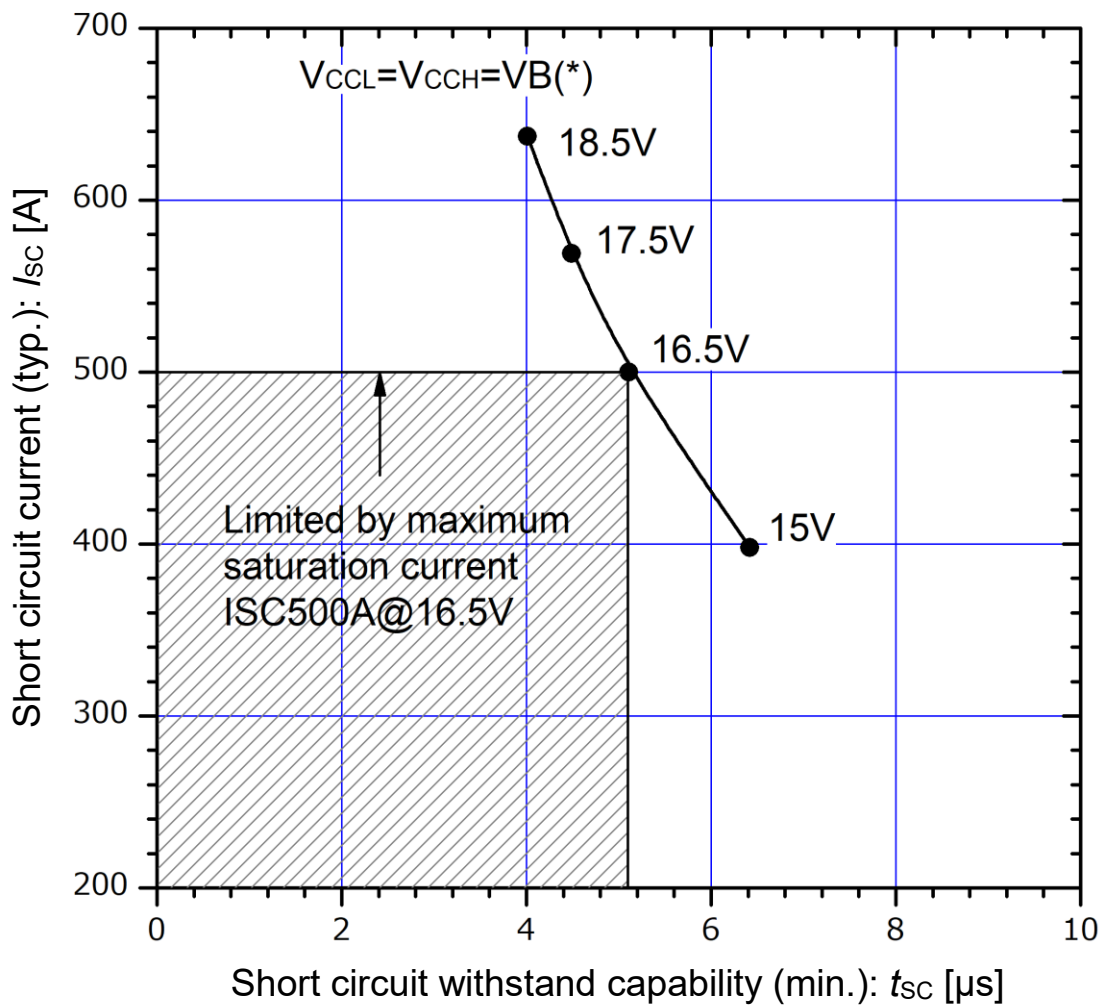
Short circuit current vs. Short circuit withstand capability  
 $I_{SC}=f(t_{SC})$ ;  $V_{DC}=400V$ ,  $T_{vj}=125^{\circ}C$  start



Type name: 6MBP75XTA065-50, 6MBP75XTC065-50  
 Conditions:  $V_{DC}=400V$ ,  $T_{vj}=125^{\circ}C$  start, non-repetitive pulse

This document shows  $t_{sc}$  dependency on  $I_{sc}$  by each control circuit voltage  $V_{CCL}$  or  $V_{CCH}$ . In the case of  $V_{CCL}=V_{CCH}=V_B(^*)=16.5V$ , 6MBP50XTA(C)065-50 can safely shut down short circuit current that is about 6.7 times of its current rating under the conditions only if the IGBT conducting period is less than  $5.1\mu s$ . Since the SCSOA area varies depending on the input voltage  $V_{DC}$ , control circuit voltage  $V_{CCL}$  or  $V_{CCH}$ , virtual junction temperature  $T_{vj}$ , etc., please be careful to design with a suitable margin.

Short circuit current vs. Short circuit withstand capability  
 $I_{sc}=f(t_{sc})$ ;  $V_{DC}=400V$ ,  $T_{vj}=125^{\circ}C$  start



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  - Machine tools    •Audiovisual equipment    •Electrical home appliances    •Personal equipment    •Industrial robots etc
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  - Medical equipment.
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