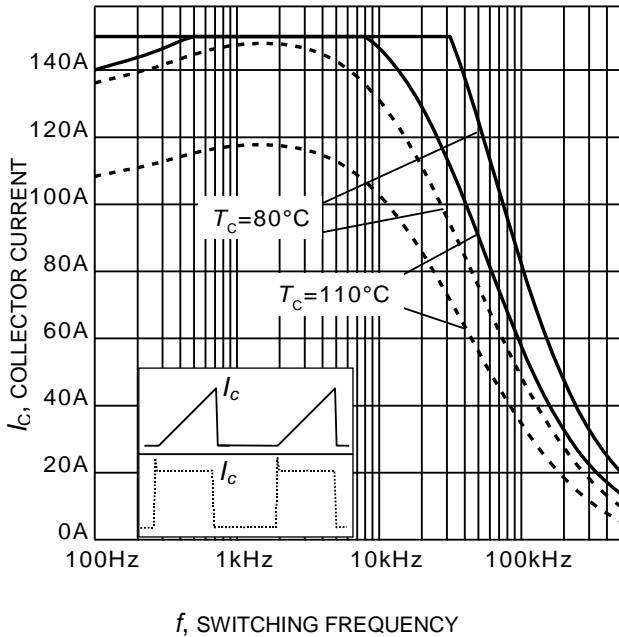


### Switching Characteristic, Inductive Load, at $T_j=25\text{ °C}$

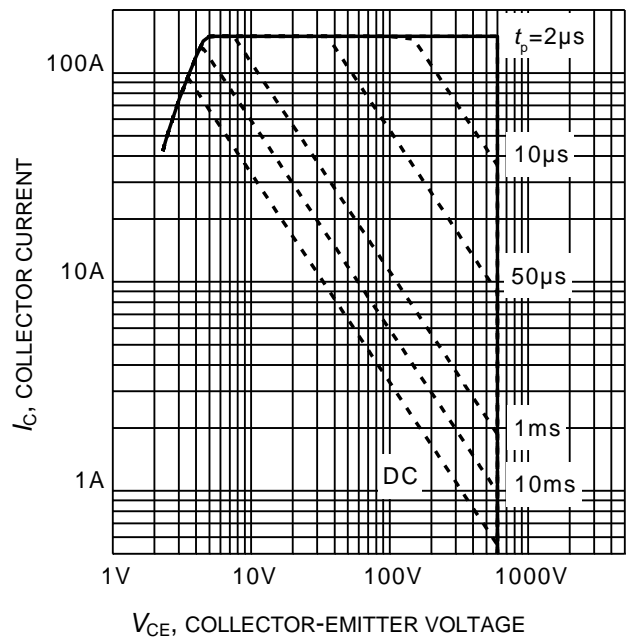
Parameter	Symbol	Conditions	Value			Unit
			min.	Typ.	max.	
<b>IGBT Characteristic</b>						
Turn-on delay time	$t_{d(on)}$	$T_j=25\text{ °C}$ , $V_{CC}=400\text{V}$ , $I_C=50\text{A}$ , $V_{GE}=0/15\text{V}$ , $r_G=7\Omega$ , $L_\sigma=103\text{nH}$ , $C_\sigma=39\text{pF}$ $L_\sigma$ , $C_\sigma$ from Fig. E Energy losses include "tail" and diode reverse recovery.	-	26	-	ns
Rise time	$t_r$		-	29	-	
Turn-off delay time	$t_{d(off)}$		-	299	-	
Fall time	$t_f$		-	29	-	
Turn-on energy	$E_{on}$	Diode from IKW50N60T	-	1.2	-	mJ
Turn-off energy	$E_{off}$		-	1.4	-	
Total switching energy	$E_{ts}$		-	2.6	-	

### Switching Characteristic, Inductive Load, at $T_j=150\text{ °C}$

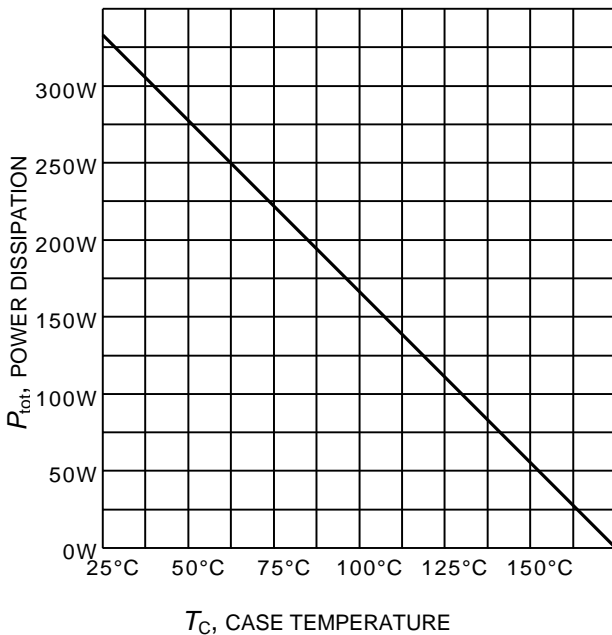
Parameter	Symbol	Conditions	Value			Unit
			min.	Typ.	max.	
<b>IGBT Characteristic</b>						
Turn-on delay time	$t_{d(on)}$	$T_j=175\text{ °C}$ , $V_{CC}=400\text{V}$ , $I_C=50\text{A}$ , $V_{GE}=0/15\text{V}$ , $r_G=7\Omega$ , $L_\sigma=103\text{nH}$ , $C_\sigma=39\text{pF}$ $L_\sigma$ , $C_\sigma$ from Fig. E Energy losses include "tail" and diode reverse recovery.	-	27	-	ns
Rise time	$t_r$		-	33	-	
Turn-off delay time	$t_{d(off)}$		-	341	-	
Fall time	$t_f$		-	55	-	
Turn-on energy	$E_{on}$	Diode from IKW50N60T	-	1.8	-	mJ
Turn-off energy	$E_{off}$		-	1.8	-	
Total switching energy	$E_{ts}$		-	3.6	-	



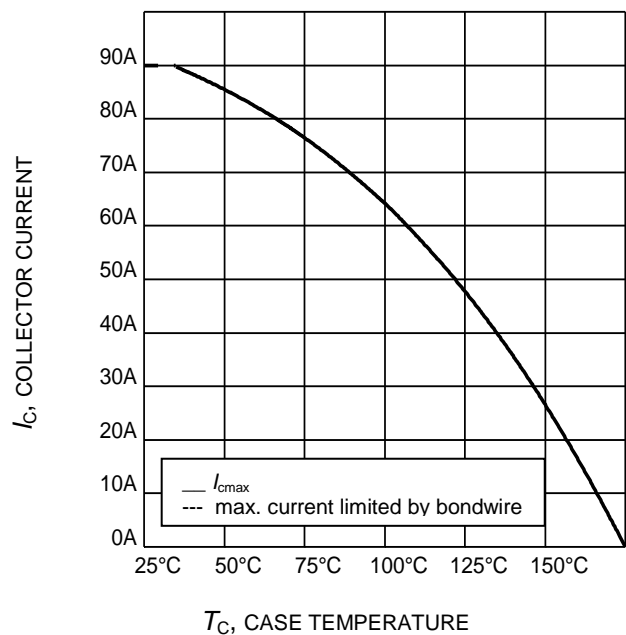
**Figure 1. Collector current as a function of switching frequency**  
 ( $T_j \leq 175^\circ\text{C}$ ,  $D = 0.5$ ,  $V_{CE} = 400\text{V}$ ,  
 $V_{GE} = 0/15\text{V}$ ,  $r_G = 7\Omega$ )



**Figure 2. Safe operating area**  
 ( $D = 0$ ,  $T_C = 25^\circ\text{C}$ ,  $T_j \leq 175^\circ\text{C}$ ;  
 $V_{GE} = 0/15\text{V}$ )



**Figure 3. Power dissipation as a function of case temperature**  
 ( $T_j \leq 175^\circ\text{C}$ )



**Figure 4. Collector current as a function of case temperature**  
 ( $V_{GE} \geq 15\text{V}$ ,  $T_j \leq 175^\circ\text{C}$ )