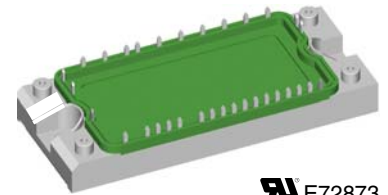
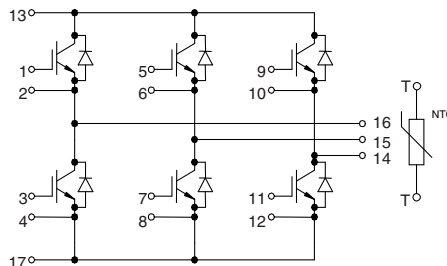


IGBT Modules

Sixpack

Short Circuit SOA Capability
Square RBSOA

Type:	NTC - Option:
MWI 50-12 A7	without NTC
MWI 50-12 A7T	with NTC



See outline drawing for pin arrangement

IGBTs		
Symbol	Conditions	Maximum Ratings
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	1200 V
V_{GES}		± 20 V
I_{C25}	$T_C = 25^{\circ}\text{C}$	85 A
I_{C80}	$T_C = 80^{\circ}\text{C}$	60 A
RBSOA	$V_{GE} = \pm 15$ V; $R_G = 22 \Omega$; $T_{VJ} = 125^{\circ}\text{C}$ Clamped inductive load; $L = 100 \mu\text{H}$	$I_{CM} = 100$ A $V_{CEK} \leq V_{CES}$
t_{SC} (SCSOA)	$V_{CE} = V_{CES}$; $V_{GE} = \pm 15$ V; $R_G = 22 \Omega$; $T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10 μs
P_{tot}	$T_C = 25^{\circ}\text{C}$	350 W

Features

- NPT IGBT technology
- low saturation voltage
- low switching losses
- switching frequency up to 30 kHz
- square RBSOA, no latch up
- high short circuit capability
- positive temperature coefficient for easy paralleling
- MOS input, voltage controlled
- ultra fast free wheeling diodes
- solderable pins for PCB mounting
- package with copper base plate

Advantages

- space savings
- reduced protection circuits
- package designed for wave soldering

Typical Applications

- AC motor control
- AC servo and robot drives
- power supplies

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$V_{CE(sat)}$	$I_C = 50$ A; $V_{GE} = 15$ V; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	2.2	2.5	2.7 V
$V_{GE(th)}$	$I_C = 2$ mA; $V_{GE} = V_{CE}$	4.5		6.5 V
I_{CES}	$V_{CE} = V_{CES}$; $V_{GE} = 0$ V; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		3	4 mA
I_{GES}	$V_{CE} = 0$ V; $V_{GE} = \pm 20$ V			200 nA
$t_{d(on)}$	Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600$ V; $I_C = 50$ A $V_{GE} = \pm 15$ V; $R_G = 22 \Omega$		100	ns
t_r			70	ns
$t_{d(off)}$			500	ns
t_f			70	ns
E_{on}			7.6	mJ
E_{off}			5.6	mJ
C_{ies}	$V_{CE} = 25$ V; $V_{GE} = 0$ V; $f = 1$ MHz		3300	pF
Q_{Gon}	$V_{CE} = 600$ V; $V_{GE} = 15$ V; $I_C = 50$ A		230	nC
R_{thJC}	(per IGBT)			0.35 K/W

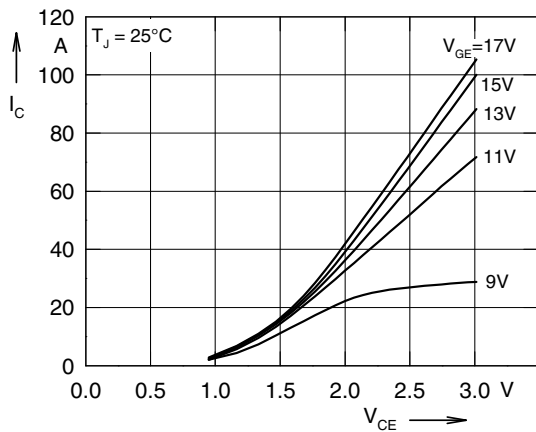


Fig. 1 Typ. output characteristics

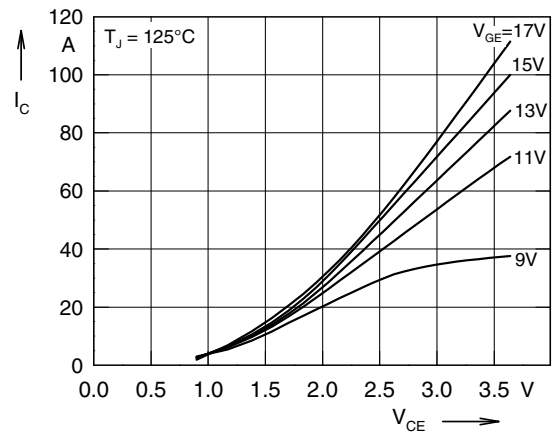


Fig. 2 Typ. output characteristics

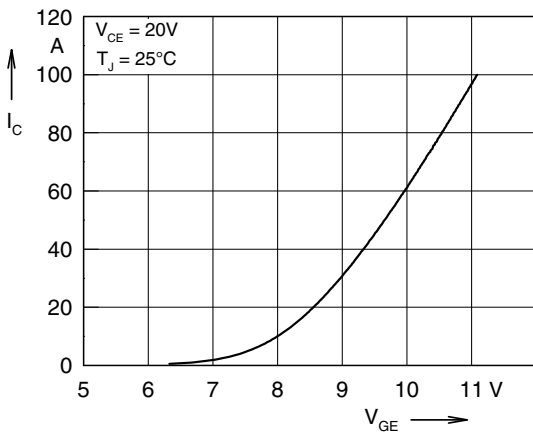


Fig. 3 Typ. transfer characteristics

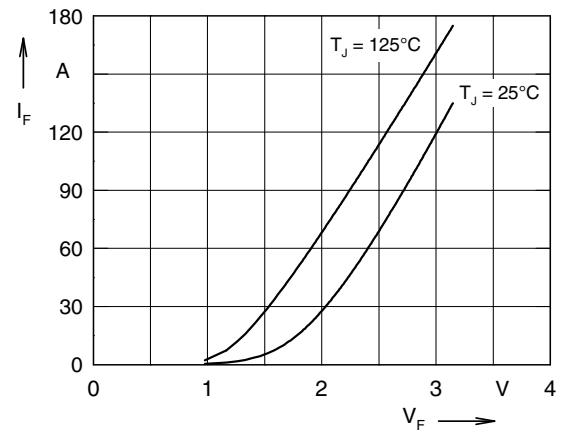


Fig. 4 Typ. forward characteristics of free wheeling diode

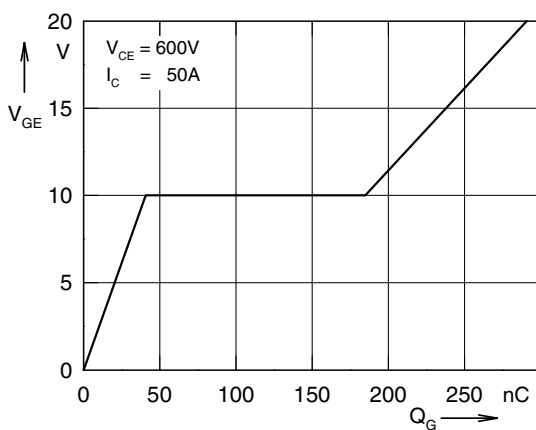


Fig. 5 Typ. turn on gate charge

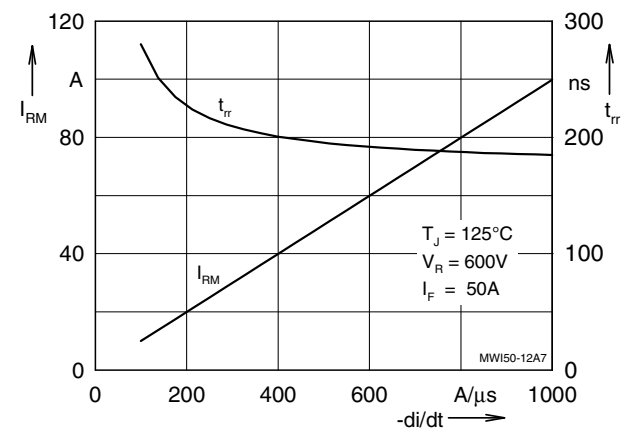


Fig. 6 Typ. turn off characteristics of free wheeling diode

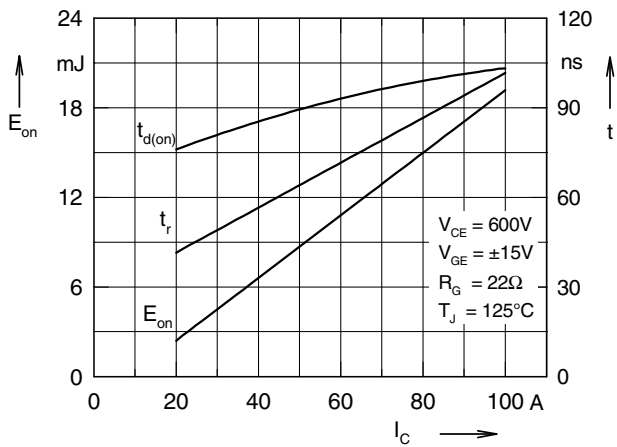


Fig. 7 Typ. turn on energy and switching times versus collector current

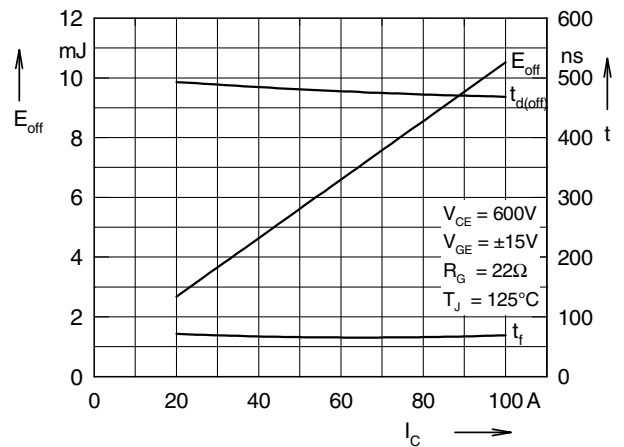


Fig. 8 Typ. turn off energy and switching times versus collector current

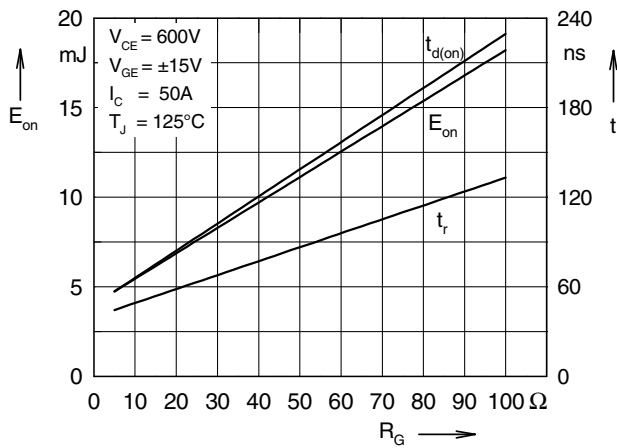


Fig. 9 Typ. turn on energy and switching times versus gate resistor

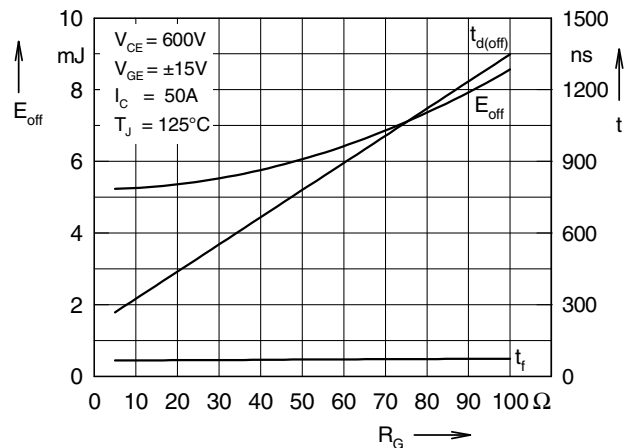


Fig.10 Typ. turn off energy and switching times versus gate resistor

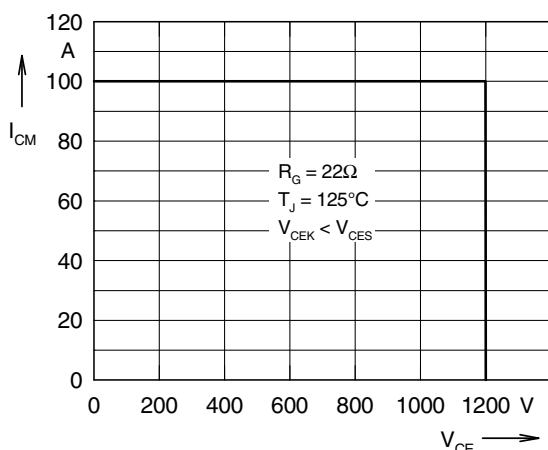


Fig. 11 Reverse biased safe operating area RBSOA

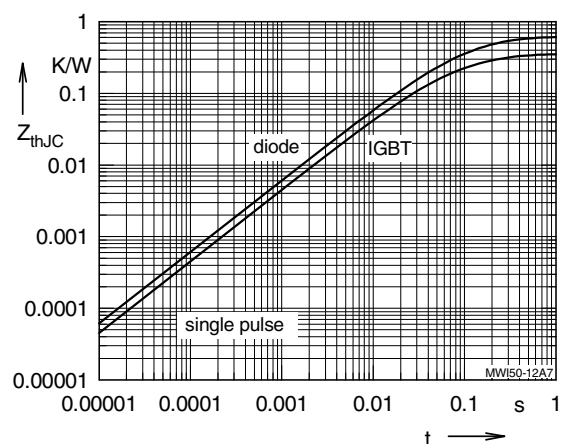


Fig. 12 Typ. transient thermal impedance