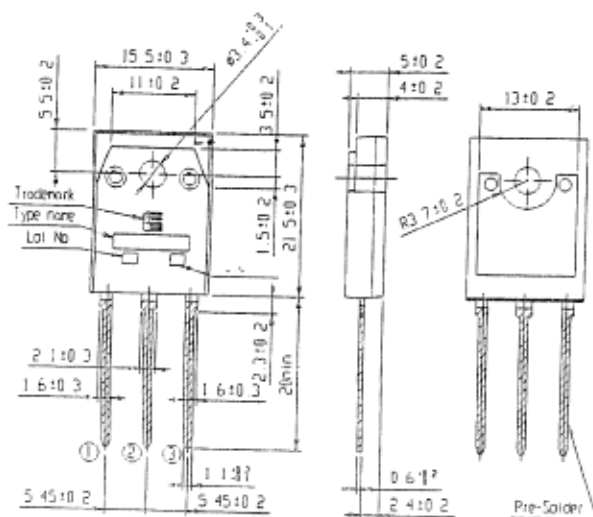


1MBK50D-060S (TENTATIVE)

1. Outline Drawing



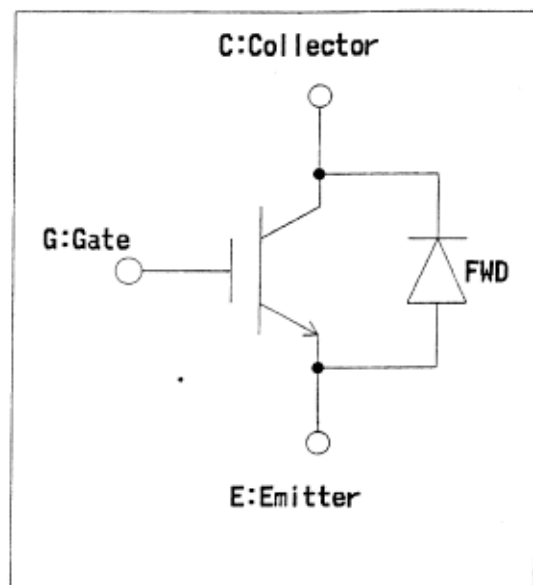
CONNECTION

- ① GATE
- ② DRAIN
- ③ SOURCE

JEDEC : 10-247

DIMENSIONS ARE IN MILLIMETERS

2. Equivalent circuit



3. Absolute maximum ratings (Tc=25°C)

Items	Symbols	Ratings	Units		
Collector-Emitter Voltage	V_{CES}	600	V		
Gate-Emitter Voltage	V_{GES}	±30	V		
Collector Current	DC	Tc=25 °C	I_{C25}	65	A
		Tc=100°C	I_{C100}	50	A
	1ms	Tc=25 °C	I_{cp}	150	A
IGBT Max. Power Dissipation	P_c	200	W		
FWD Max. Power Dissipation	P_c	130	W		
Operating Temperature	T_j	+ 150	°C		
Storage Temperature	T_{stg}	-40 ~ +150	°C		

4. Electrical Characteristics (at Tc=25°C unless otherwise specified)

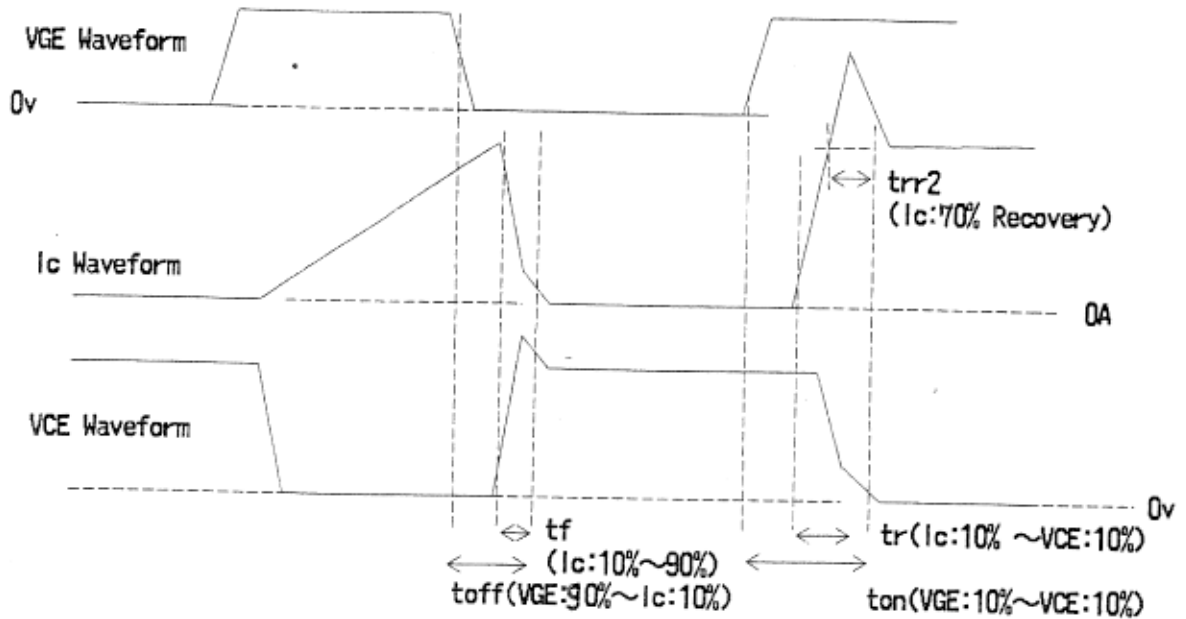
Items	Symbols	Characteristics			Conditions	Unit			
		min.	typ.	max.					
Zero gate voltage Collector Current	I_{CES}	—	—	1.0	$V_{GE} = 0V$ $V_{CE} = 600V$	mA			
Gate-Emitter leakage Current	I_{GES}	—	—	10	$V_{CE} = 0V$ $V_{GE} = \pm 30V$	μA			
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	4.0	5.0	6.0	$V_{CE} = 20V$ $I_C = 50mA$	V			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	2.4	2.9	$V_{GE} = 15V$ $I_C = 50A$	V			
Input capacitance	C_{ies}	—	2500	—	$V_{GE} = 0V$	pF			
Output capacitance	C_{oes}	—	240	—	$V_{CE} = 25V$				
Reverse transfer capacitance	C_{res}	—	130	—	$f = 1MHz$				
Switching Time	Turn-on time	$t_{on} *$	—	0.15	—	$V_{CC} = 300V$ $I_C = 50A$ $V_{GE} = \pm 15V$ $R_G = 33 \Omega$ (Half Bridge)	μS		
		$t_r *$	—	0.09	—				
		t_{rr2}	—	0.03	—				
	Turn-off time	t_{off}	—	0.50	0.62			Inductance Load	
		t_f	—	0.10	0.17				
	Turn-on time	$t_{on} *$	—	0.15	—			$V_{CC} = 300V$ $I_C = 50A$ $V_{GE} = +15V$ $R_G = 8.0 \Omega$ (Half Bridge)	
		$t_r *$	—	0.09	—				
		t_{rr2}	—	0.03	—				
	Turn-off time	t_{off}	—	0.50	0.62				Inductance Load
		t_f	—	0.10	0.17				
FWD forward voltage	V_F	—	2.0	2.5	$I_F=50A, V_{GE}=0V$				
Reverse recovery time	t_{rr}	—	0.06	0.10	$I_F=50A, V_{GE}=-10V$ $V_R=300V,$ $dv/dt=100A/\mu S$	μS			

* Turn-on characteristics include t_{rr2} . See figure.A in next page.

5. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Unit
		min.	typ.	max.		
Thermal resistance	Rth(j-c)	—	—	0.63	IGBT	°C/W
	Rth(j-c)	—	—	0.96	FWD	

6. Switching waveform



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