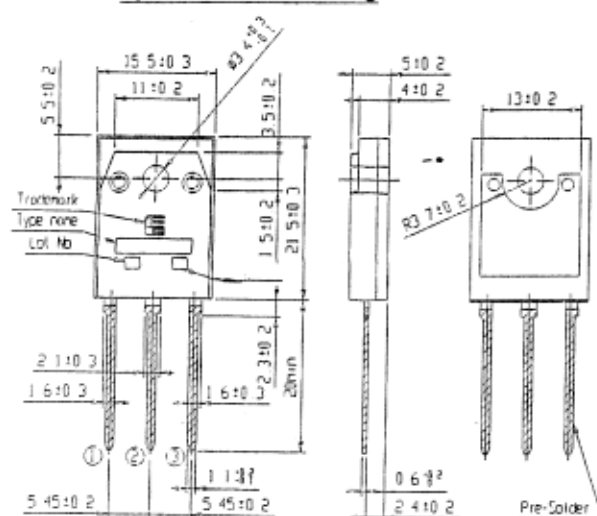


1MBK30D-060S

1. Outline Drawing



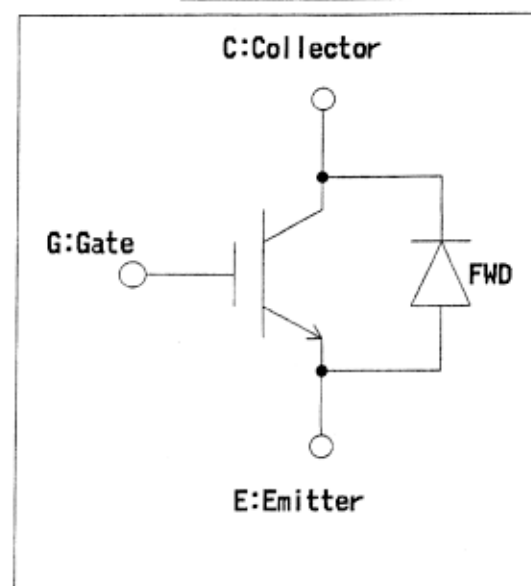
CONNECTION

- ① GATE
② DRAIN
③ SOURCE

JEDEC TO-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}	50	A
		Tc=100°C	I_{C100}	30	A
	1ms	Tc=25 °C	I_{cp}	90	A
IGBT Max. Power Dissipation			P_c	150	W
FWD Max. Power Dissipation			P_c	80	W
Operating Temperature			T_j	+ 150	°C
Storage Temperature			T_{stg}	-40 ~ +150	°C

4. Electrical Characteristics (at $T_c=25^{\circ}\text{C}$ unless otherwise specified)

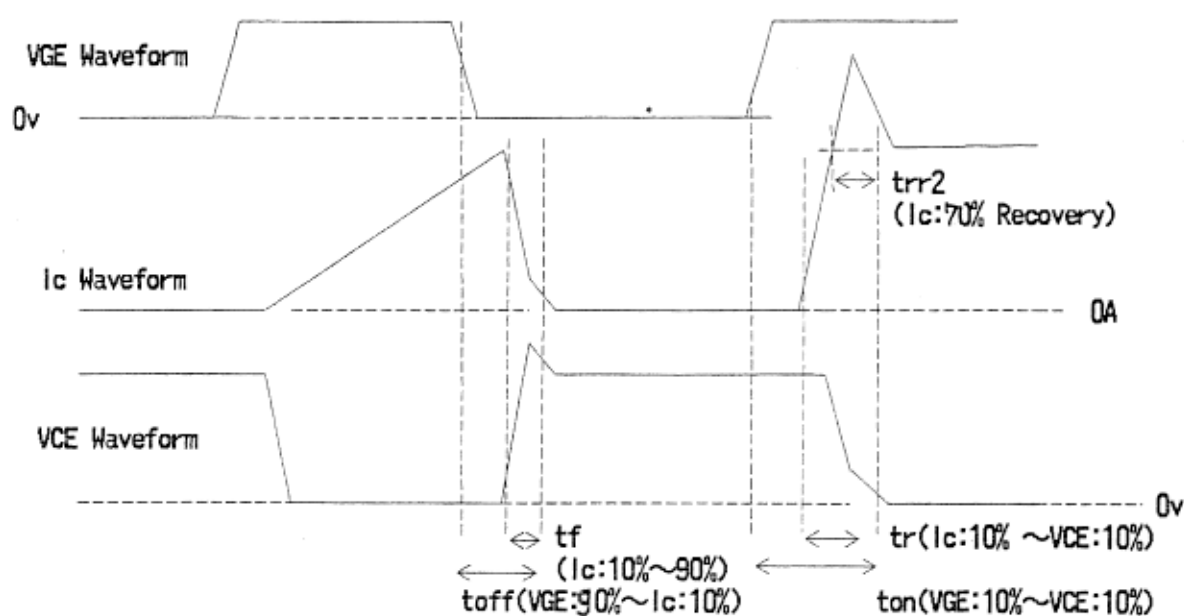
Items		Symbols	Characteristics			Conditions	Unit
			min.	typ.	max.		
Zero gate voltage Collector Current		I_{CES}	—	—	1.0	$V_{GE} = 0V$ $V_{CE} = 600V$	mA
Gate-Emitter leakage Current		I_{GES}	—	—	10	$V_{CE} = 0V$ $V_{GE} = \pm 30V$	μA
Gate-Emitter Threshold Voltage		$V_{GE(th)}$	4.0	5.0	6.0	$V_{CE} = 20V$ $I_c = 30mA$	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	—	2.4	2.9	$V_{GE} = 15V$ $I_c = 30A$	V
Input capacitance		C_{ies}	—	1960	—	$V_{GE} = 0V$	pF
Output capacitance		C_{oes}	—	222	—	$V_{CE} = 25V$	
Reverse transfer capacitance		C_{res}	—	101	—	$f = 1MHz$	
Switching Time	Turn-on time	$t_{on} \times$	—	0.15	—	$V_{CC} = 300V$ $I_c = 30A$ $V_{GE} = \pm 15V$ $R_G = 36 \Omega$ (Half Bridge)	μs
		$t_r \times$	—	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	$t_{on} \times$	—	0.15	—	$V_{CC} = 300V$ $I_c = 30A$ $V_{GE} = +15V$ $R_G = 10 \Omega$ (Half Bridge)	
		$t_r \times$	—	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	$I_F=30A, V_{GE}=0V$	μs
Reverse recovery time		t_{rr}	—	0.06	0.10	$I_F=30A, V_{GE}=-10V$ $V_R=300V,$ $dv/dt=100A/\mu s$	

※ 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	$R_{th(j-c)}$	—	—	0.83	IGBT	$^{\circ}\text{C/W}$
	$R_{th(j-c)}$	—	—	1.56	FWD	

6. Switching waveform



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