

BRGB75L65AHA

Rev.B May.-2026

/ Descriptions

TO-247

Insulated-Gate Bipolar Transistor in a TO-247 Plastic Package.

/ Features

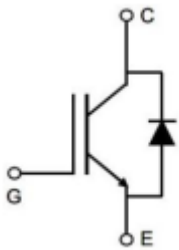
$V_{CES} = 650V$ $I_C (T_C = 100^\circ C) = 75A$

$V_{CE(SAT)} = 2.00V(\text{typ.}) @ V_{GE} = 15V, I_C = 75A$

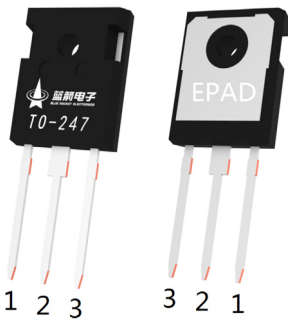
/ Applications

Motor driver, Uninterrupted Power Supply, Boost, Portable power station.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 EPAD C PIN 3 E

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Collector-Emitter Voltage		V_{CES}	650	V
Gate-Emitter Voltage		V_{GES}	30	V
Continuous Collector Current	$T_C=25$	I_C	150	A
	$T_C=100$		75	A
Pulsed Collector Current , Limited by T_{Jmax}		I_{CM}	300	A
Continuous Diode Forward Current	$T_C=25$	I_F	150	A
	$T_C=100$		75	A
Diode Repetitive Peak Forward Current		I_{FRM}	300	A
Short circuit withstand time		t_{sc}	8	μs
Power Dissipation	$T_C=25$	P_D	341	W
Maximum Temperature for Soldering		T_L	260	
Operating Junction Temperature Range		T_J	-40 to +175	
Storage Temperature Range		T_{STG}	-55 to +175	
Maximum Junction-to-Ambient		$R_{\theta JA}$	40	/W
Maximum IGBT Junction-to-Case		$R_{\theta JC}$	0.55	/W
Maximum Diode Junction-to-Case		$R_{\theta JC}$	1.44	/W

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage	BV_{CES}	$I_C=1mA, V_{GE}=0V$	650			V
Zero Gate Voltage Collector current	I_{CES}	$V_{CE}=650V, V_{GE}=0V$			10	μA
Gate-Emitter Leakage Current	I_{GES}	$V_{CE}=0V, V_{GE}=\pm 20V$			200	nA
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$I_C=1.0mA, V_{GE}=0V$	4.3	5.3	6.3	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=75A$	$T_J=25$	2.00	2.30	V
			$T_J=125$	2.23		
			$T_J=175$	2.37		
Total Gate Charge	Q_g	$V_{GE}=15V, V_{CC}=520V, I_C=75A$		167		nC
Gate to Emitter Charge	Q_{ge}			20		
Gate to Collector Charge	Q_{gc}			25		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GE}=15V$, $V_{CC}=400V$ $I_C=75A$, $R_G=5\Omega$ Inductive Load	$T_J=25$		39		ns
			$T_J=175$		42		ns
Turn-On Rise Time	$T_J=25$			71		ns	
	$T_J=175$			75		ns	
Turn-Off Delay Time	$t_{d(off)}$		$T_J=25$		131		ns
			$T_J=175$		162		ns
Turn-Off Fall Time	t_f		$T_J=25$		44		ns
			$T_J=175$		40		ns
Turn-On Energy	E_{on}		$T_J=25$		2.63		mJ
			$T_J=175$		2.83		mJ
Turn-Off Energy	E_{off}		$T_J=25$		0.18		mJ
			$T_J=175$		0.20		mJ
Total Switching Energy	E_{ts}		$T_J=25$		2.81		mJ
			$T_J=175$		3.03		mJ
Input Capacitance	C_{ies}	$V_{GE}=0V$, $V_{CE}=25V$ $f=1MHz$			3360		pF
Output Capacitance	C_{oes}				179		pF
Reverse Transfer Capacitance	C_{res}				90		pF
Diode Forward Voltage	V_F	$I_F=40A$	$T_J=25$		1.55	1.95	V
			$T_J=125$		1.32		
			$T_J=175$		1.26		
Diode Reverse Recovery Time	T_{rr}	$VR=400V$, $I_F=40A$ $dI_F/dt=200$ A/us	$T_J=25$		90		ns
			$T_J=175$		117		
Diode Reverse Recovery Charge	Q_{rr}		$T_J=25$		112		μC
			$T_J=175$		163		
Diode Peak Reverse Recovery Current	I_{rm}		$T_J=25$		3.2		A
			$T_J=175$		4.6		

/ Electrical Characteristic Curve

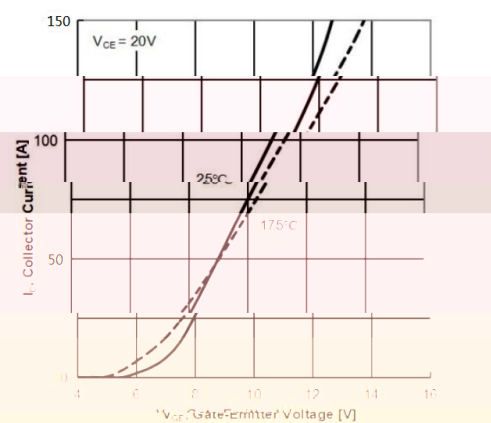
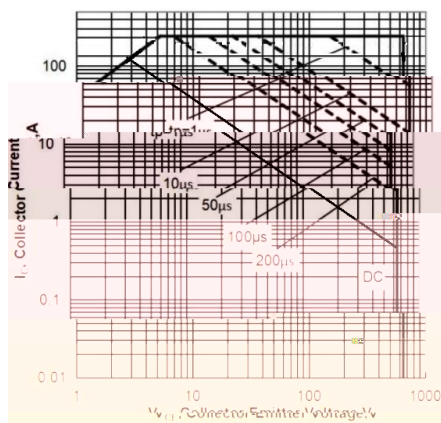
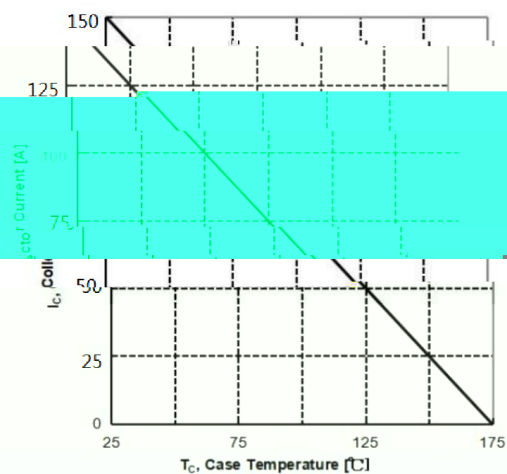
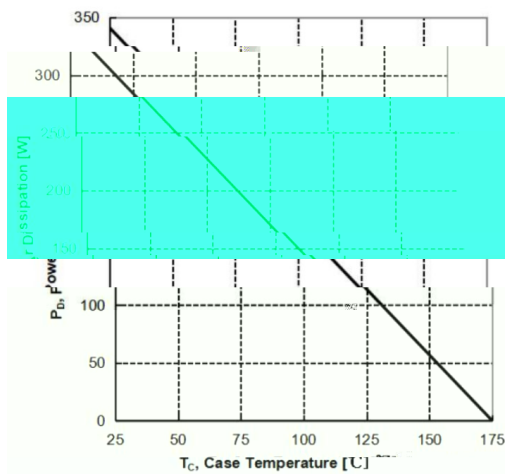
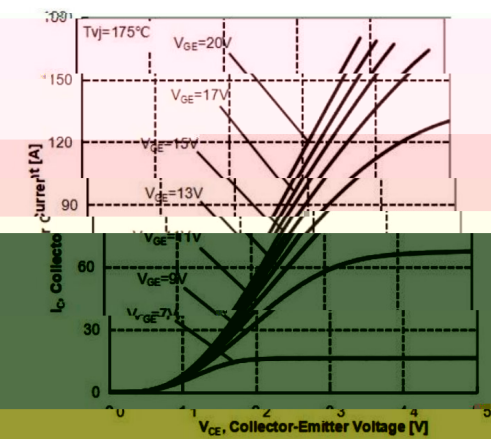
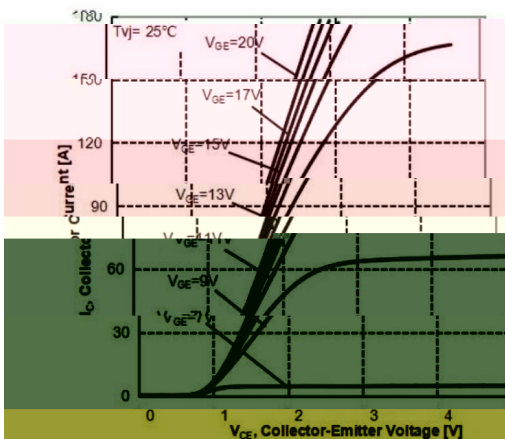
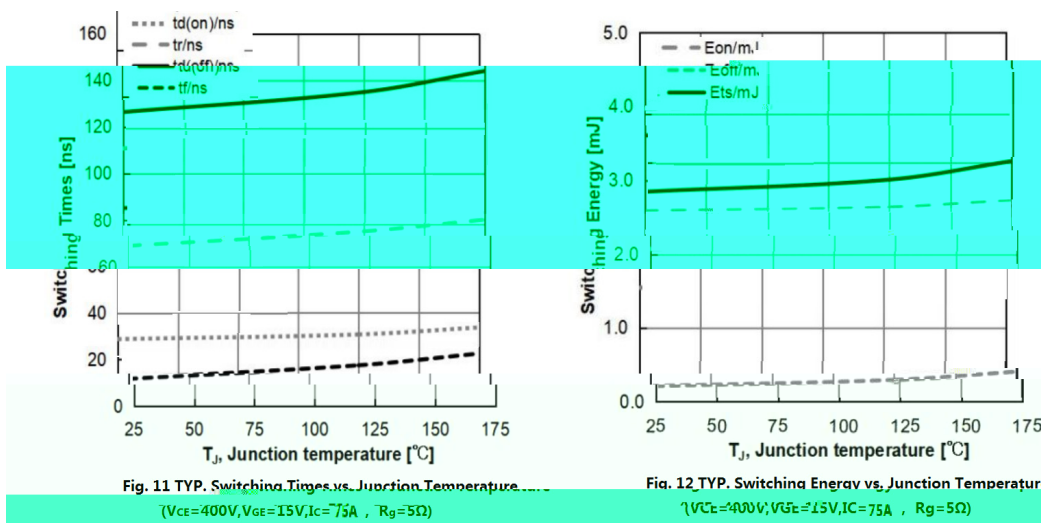
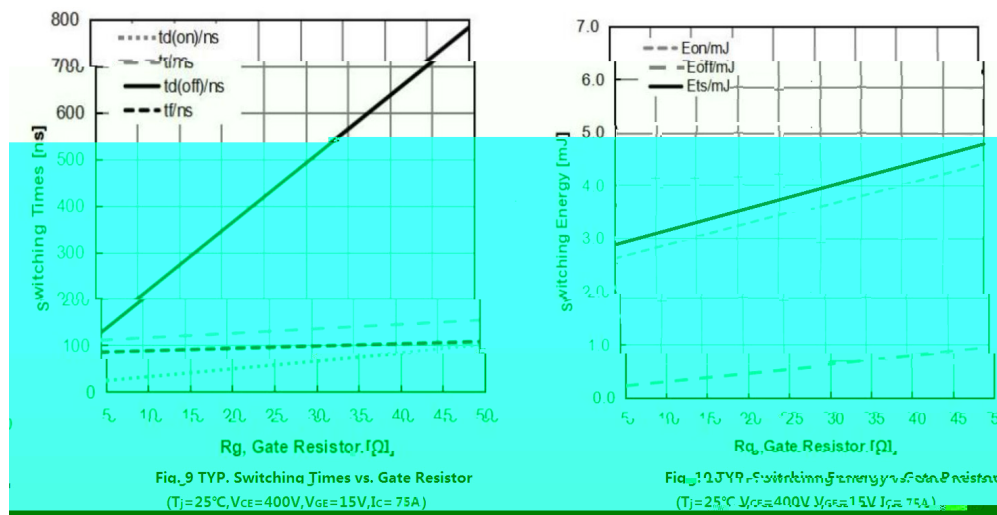
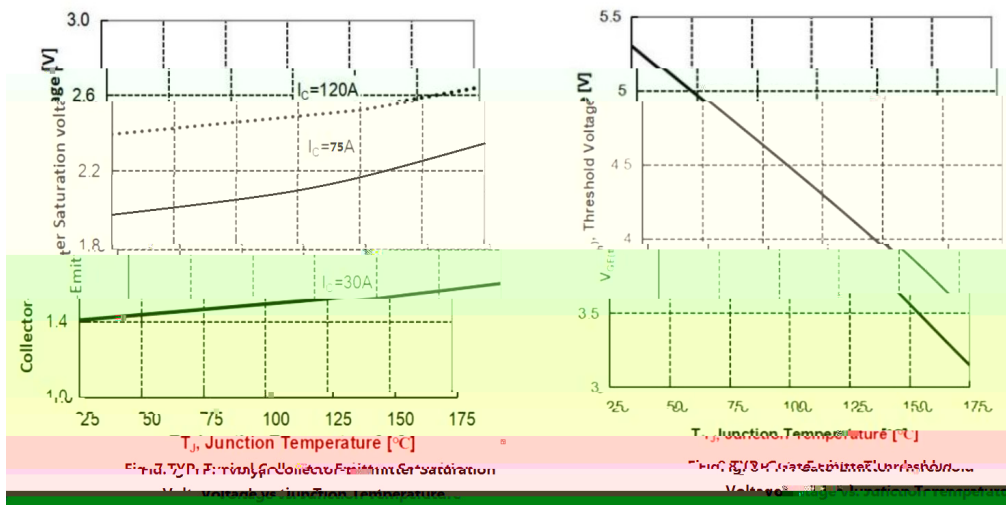


Fig. 3 Forward bias safe operation area (FBSOA) at T_C = 25°C, T_C ≤ 175°C; V_{GS} = 15V. Recommended use at V_{GS} ≥ 7.5V)

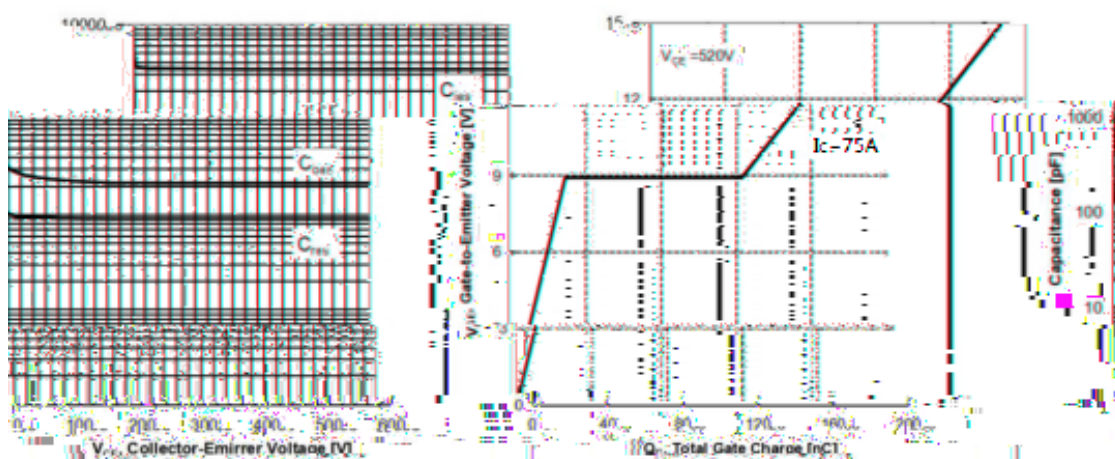
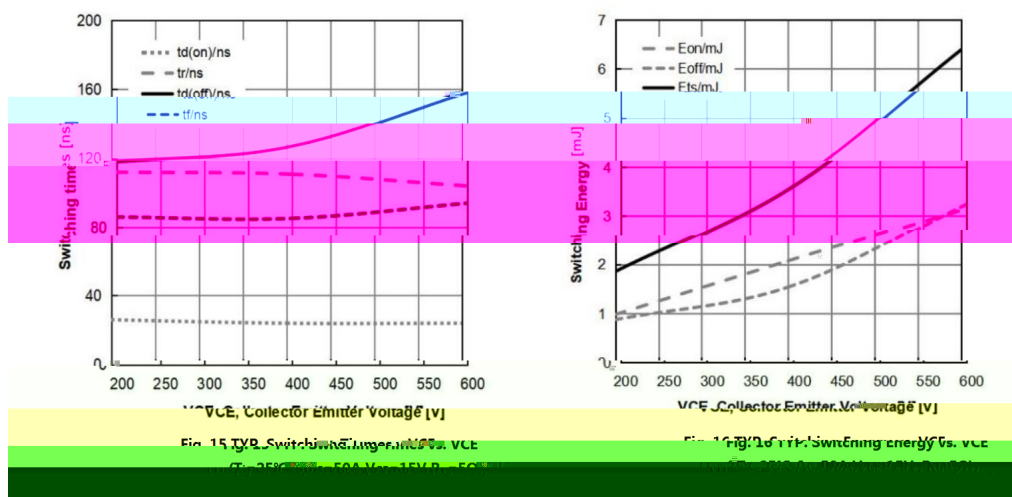
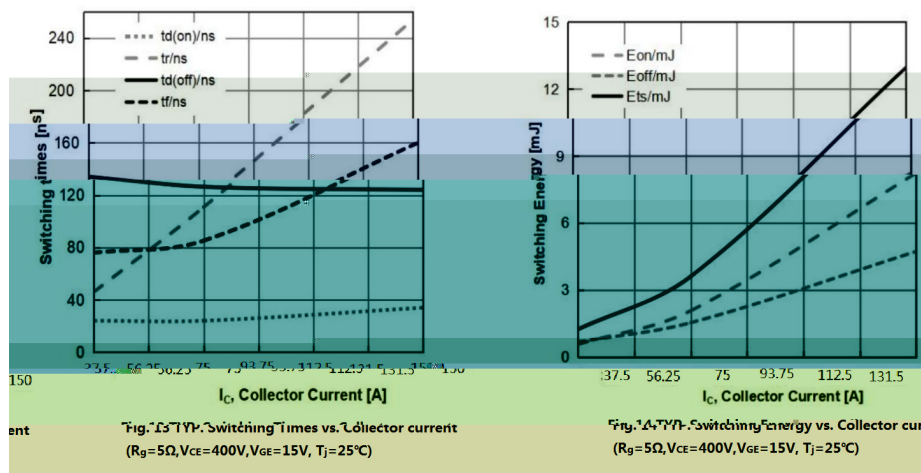
Fig. 4 Power dissipation as a function of V_{GS} at T_C = 25°C, T_C ≤ 175°C; V_{GS} = 15V. Recommended use at V_{GS} ≥ 7.5V)



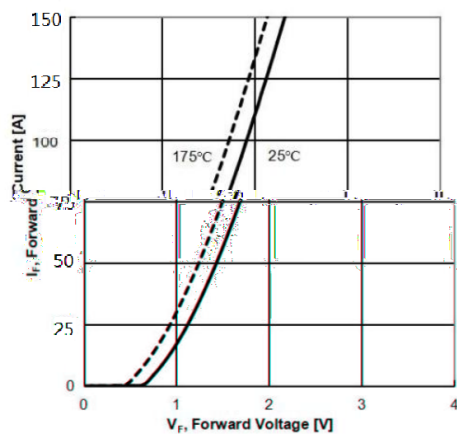
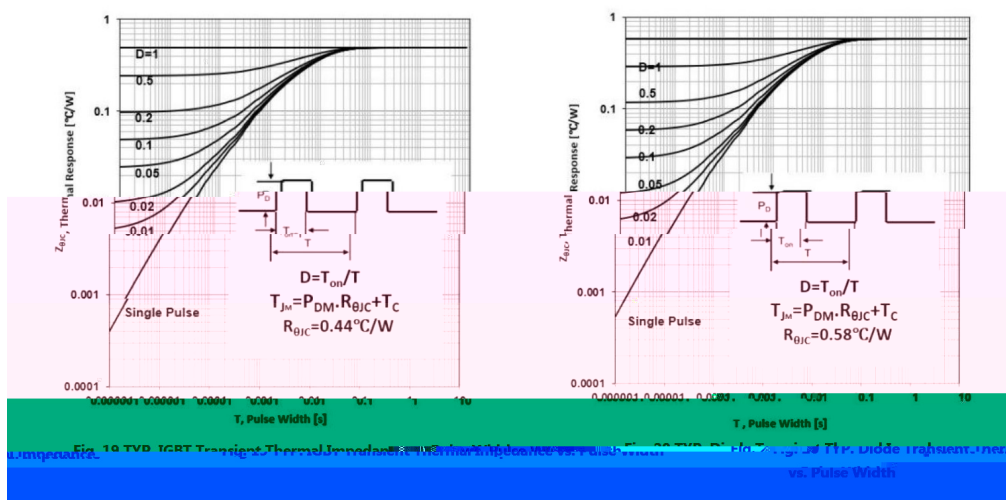
/ Electrical Characteristic Curve



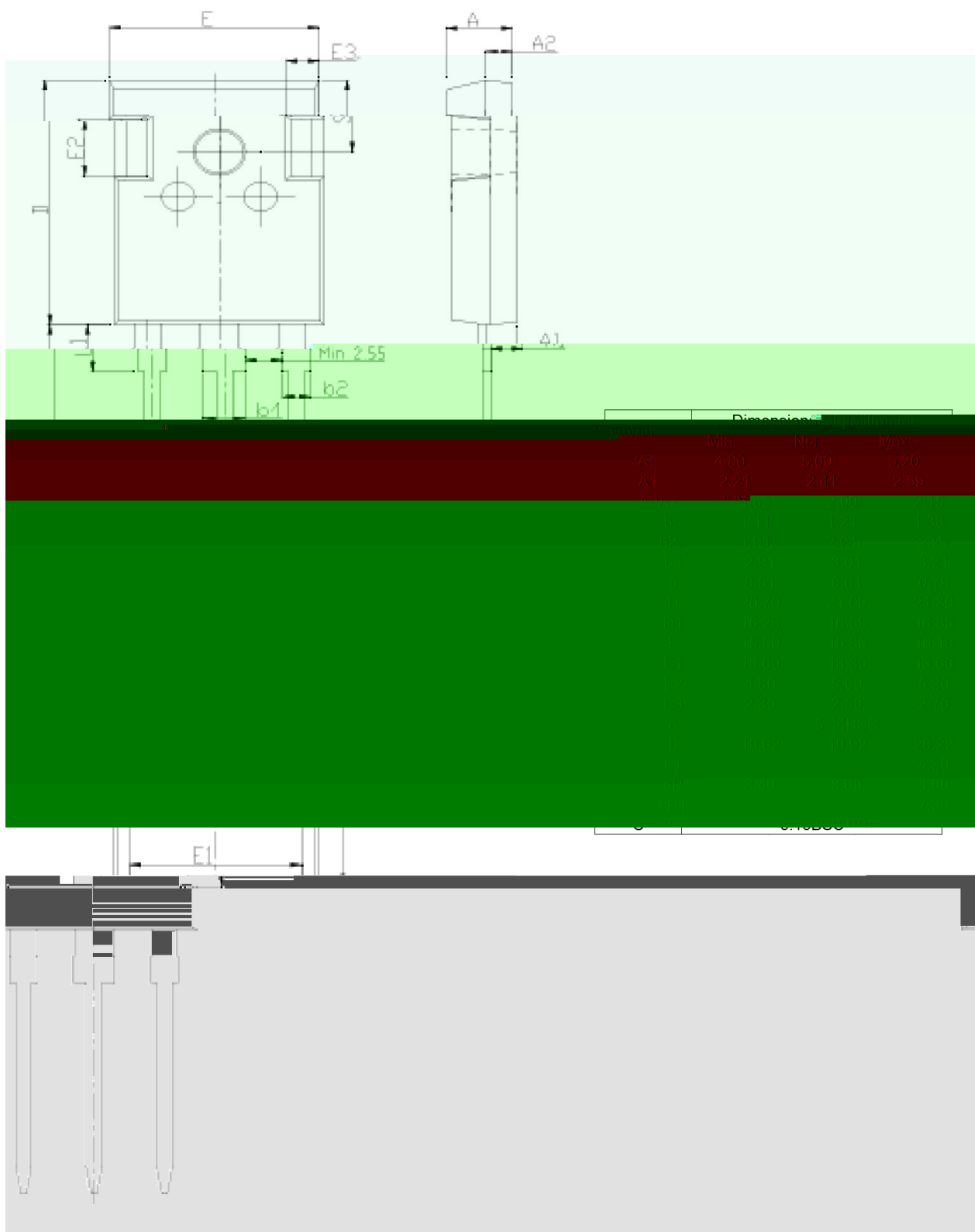
/ Electrical Characteristic Curve



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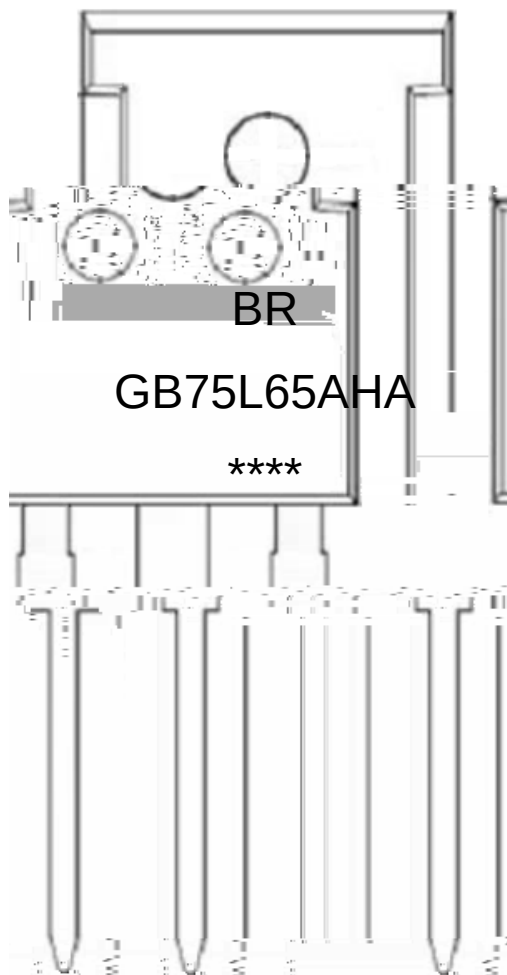


/ Package Dimensions





/ Marking Instructions



BR

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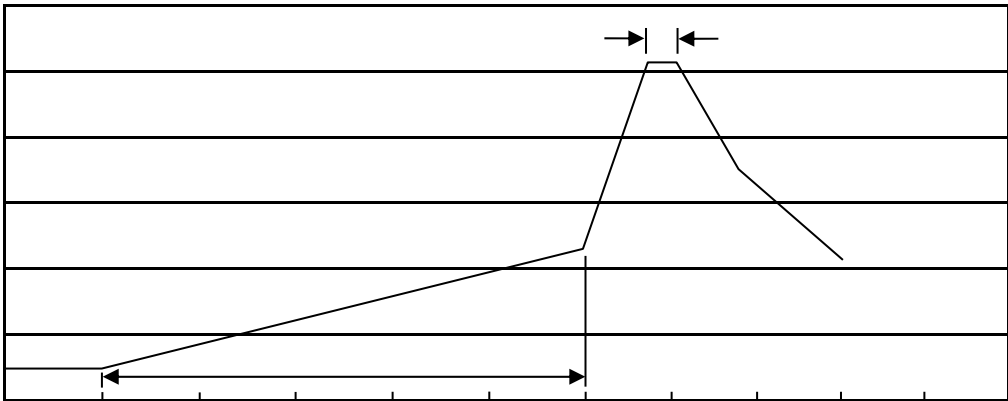
Note:

BR: Company Code

GB75L65AHA: Product Type Code

****: Lot No. Code, code change with Lot No.

() / Temperature Profile for Dip Soldering(Pb-Free)



Note:

- 1

25 150

60 90sec;

1.Preheating:25~150 , Time:60~90sec.
- 2

255±5

5±0.5sec;

2.Peak Temp.:255±5 , Duration:5±0.5sec.
- 3

2 10 /sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

270±5 10±1 sec. Temp.:270±5 Time:10±1 sec

/ Packaging SPEC.

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-247	30	15	450	5	2250	520×44×6	580×158×55	595×300×178

/ Notices

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