

BRPGB100N65AHA

Rev.A Mar.-2026

/ Descriptions

TO-247

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

/ Features

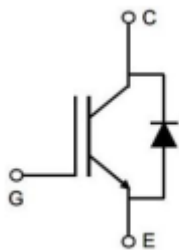
650V 100A

$V_{CE(SAT)} = 1.60V(\text{typ.}) @ V_{GE} = 15V, I_C = 100A$

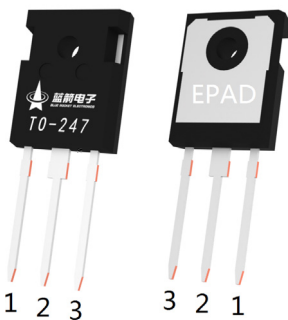
/ Applications

Solar Converters, Uninterrupted Power Supply, Welding Converters, Mid to High Range Switching Frequency Converters.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 EPAD C PIN 3 E

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings($T_a=25$)

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	200	A
	$T_C=100$		100	A
Pulsed Collector Current , Limited by T_{Jmax}		I_{CM}	400	A
Continuous Diode Forward Current	$T_C=25$	I_F	150	A
	$T_C=100$		75	A
Power Dissipation	$T_C=25$	P_D	536	W
Operating Junction Temperature Range		T_J	-40 to +175	
Storage Temperature Range		T_{STG}	-55 to +175	
Maximum Temperature for Soldering		T_L	260	
Maximum Junction-to-Ambient		$R_{\theta JA}$	40	/W
Maximum IGBT Junction-to-Case		$R_{\theta JC}$	0.26	/W
Maximum Diode Junction-to-Case		$R_{\theta JC}$	1.26	/W

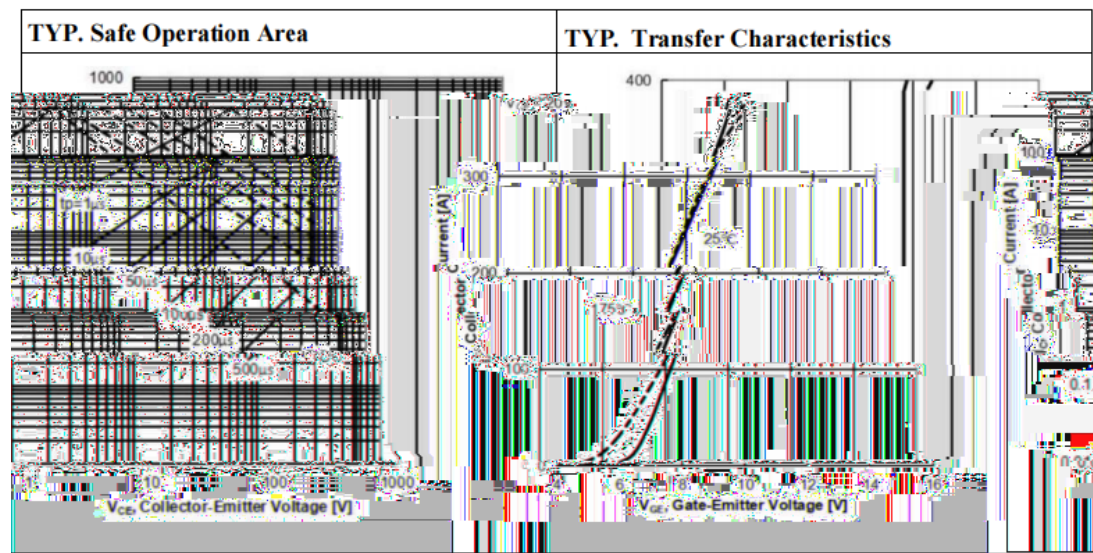
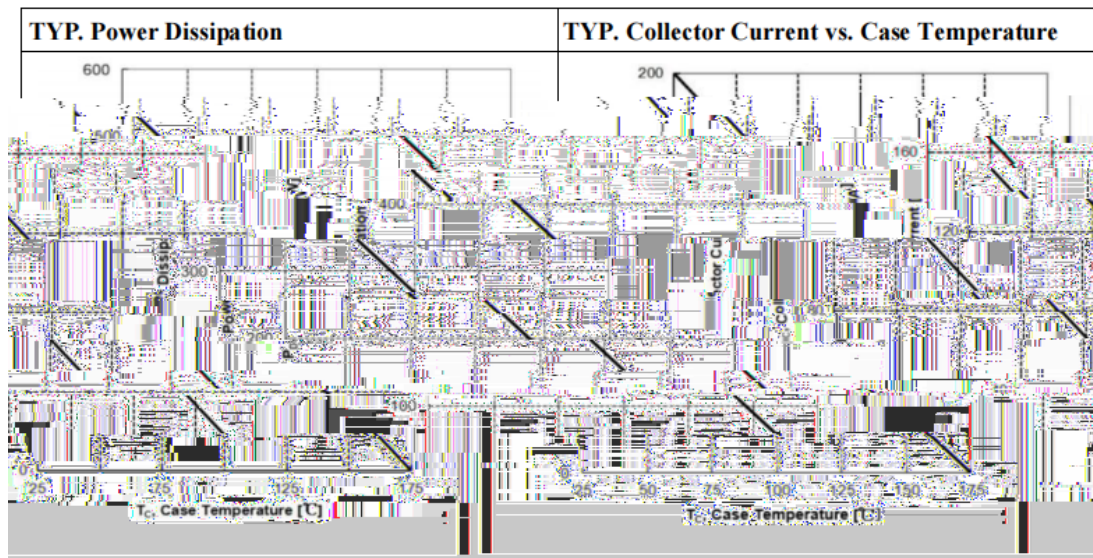
/ Electrical Characteristics($T_c=25$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage	BV_{CES}	$I_C=1.0mA$, $V_{GE}=0V$	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	$V_{GE(th)}$	$V_{CE}=V_{GE}$, $I_C=1.0mA$	4.3	5.3	6.3	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}=15V$, $I_C=100A$, $T_J=25$		1.60	1.95	V
		$T_J=125$		1.87		
		$T_J=175$		2.04		
Total Gate Charge	Q_g	$V_{GE}=15V$, $V_{CC}=520V$, $I_C=100A$		405		nC
Gate to Emitter Charge	Q_{ge}			72		
Gate to Collector Charge	Q_{gc}			189		

/ Electrical Characteristics(Ta=25)

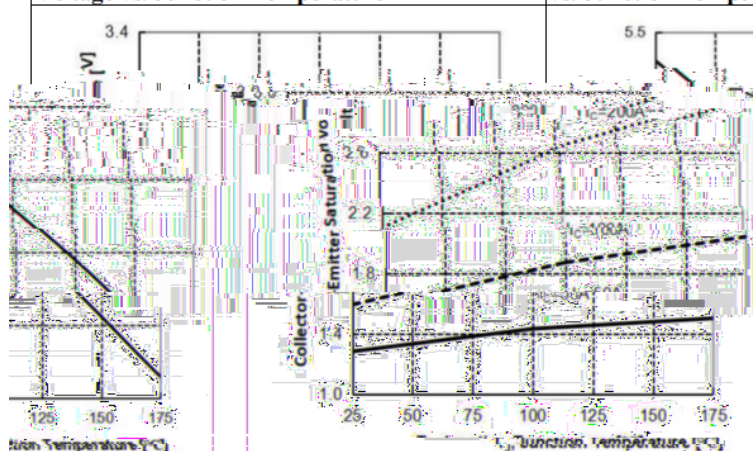
Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GE}=15V$, $V_{CC}=400V$ $I_C=100A$, $R_G=5\Omega$ Inductive Load	$T_J=25$		40		ns
			$T_J=175$		50		ns
Turn-On Rise Time	t_r		$T_J=25$		174		ns
			$T_J=175$		183		ns
Turn-Off Delay Time	$t_{d(off)}$		$T_J=25$		230		ns
			$T_J=175$		403		ns
Turn-Off Fall Time	t_f		$T_J=25$		136		ns
			$T_J=175$		177		ns
Turn-On Energy	E_{on}		$T_J=25$		4.89		mJ
			$T_J=175$		5.06		mJ
Turn-Off Energy	E_{off}		$T_J=25$		3.71		mJ
			$T_J=175$		5.01		mJ
Total Switching Energy	E_{ts}		$T_J=25$		8.6		mJ
			$T_J=175$		10.07		mJ
Input Capacitance	C_{ies}	$V_{GE}=0V$, $V_{CE}=25V$ $f=1MHz$			7220		pF
Output Capacitance	C_{oes}				369		pF
Reverse Transfer Capacitance	C_{res}				198		pF
Short Circuit Safe Operation Area	SCSOA	$V_{GE}=15V$, $V_{CC} \leq 400V$, $T_{J,start} \leq 25$		5			μs
Diode Forward Voltage	V_F	$I_F=40A$	$T_J=25$		1.35		V
Diode Reverse Recovery Time	T_{rr}	$V_R=400V$, $I_F=75A$ $dI_F/dt=200$ $A/\mu s$ $T_C=25$	$T_J=25$		136		ns
			$T_J=175$		183		
Diode Reverse Recovery Charge	Q_{rr}		$T_J=25$		430		μC
			$T_J=175$		670		
Diode Peak Reverse Recovery Current	I_{rm}		$T_J=25$		6.3		A
			$T_J=175$		8.5		

/ Electrical Characteristic Curve

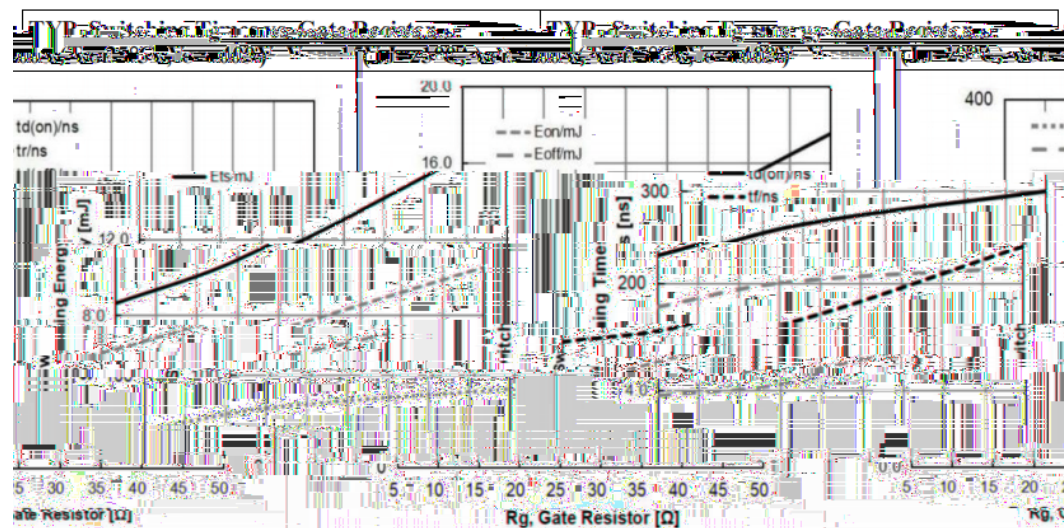
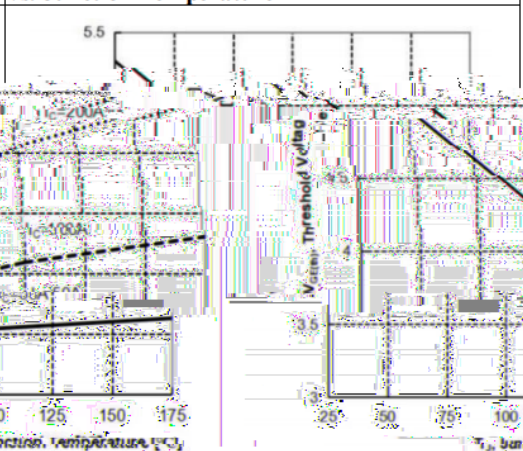


/ Electrical Characteristic Curve

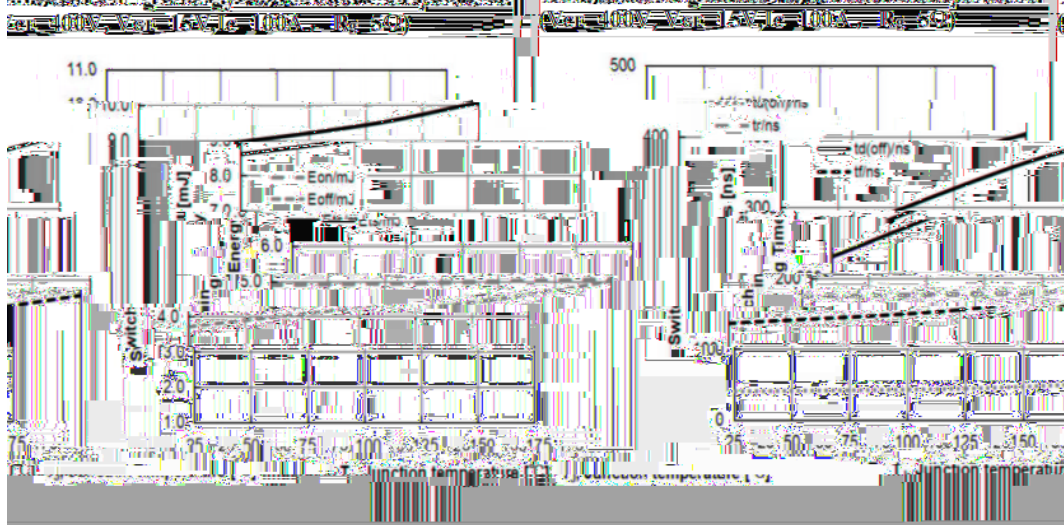
TYP. Typical Collector-Emitter Saturation Voltage vs. Junction Temperature



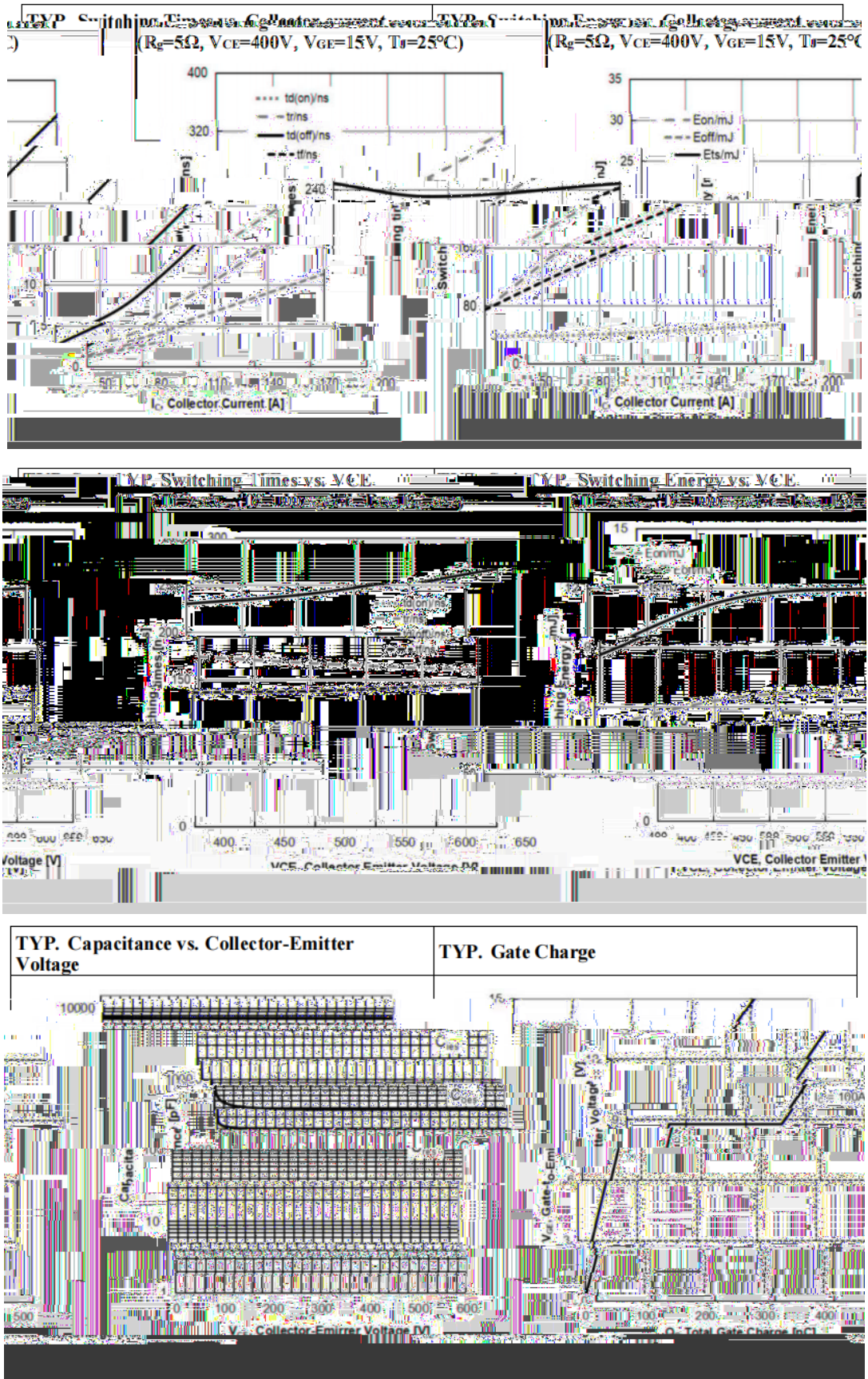
TYP. Gate-Emitter Threshold Voltage vs. Junction Temperature



TYP. Switching Times vs. Junction Temperature



/ Electrical Characteristic Curve

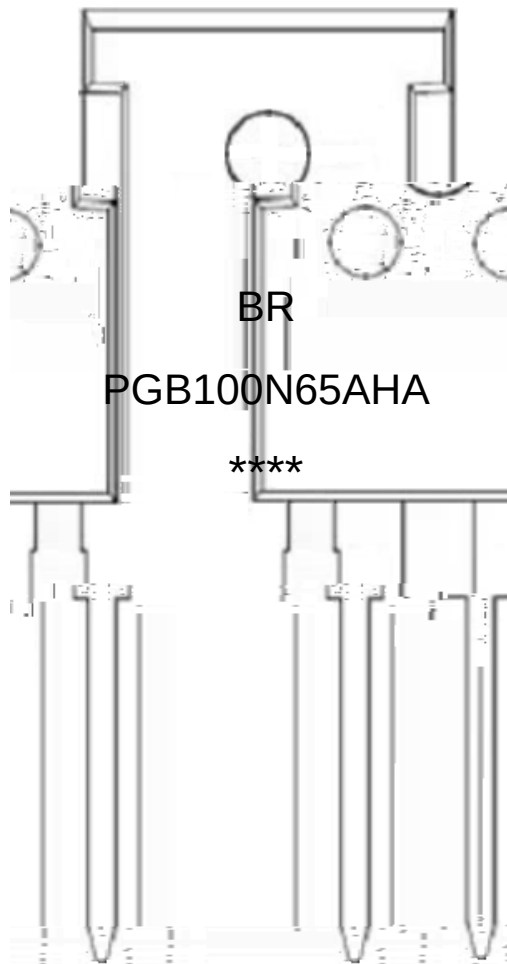


/ Electrical Characteristic Curve

TYP. IGBT Transient Thermal Impedance vs.
Pulse Width



/ Marking Instructions



BR

PGB100N65AHA

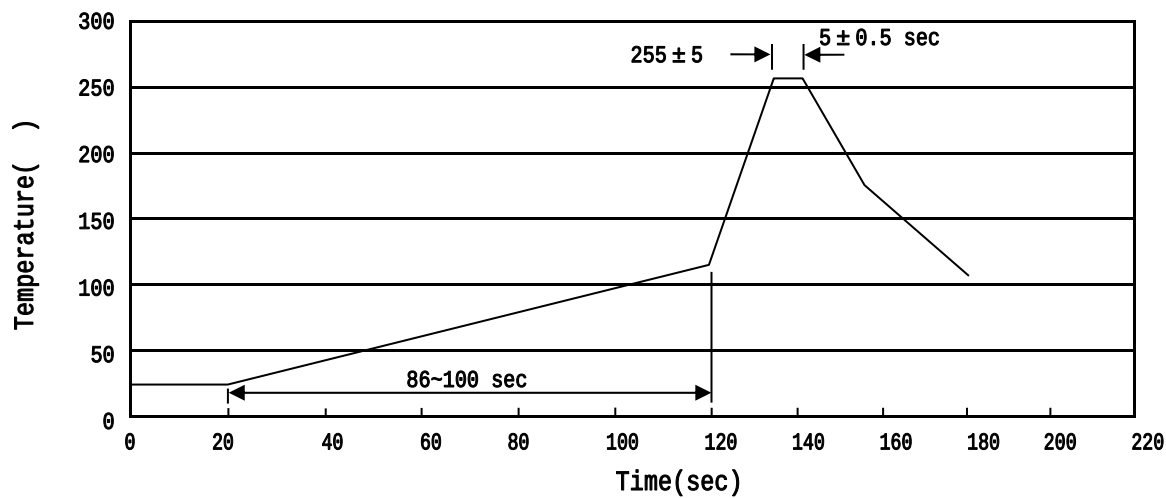
Note:

BR: Company Code

PGB100N65AHA: 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

All information provided in this document is subject to legal disclaimers.