

/ Descriptions

TO-252 N MOS

N-CHANNEL MOSFET in a TO-252 Plastic Package.

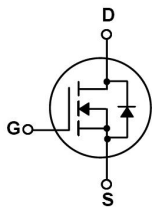
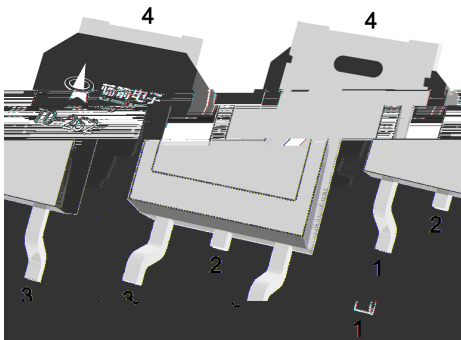
/ Features $V_{DS}(V) = 20V$ $I_D=65A(V_{GS} = 12V)$ $R_{DS(ON)}@4.5V$ $8m\Omega(Typ. 5m\Omega)$ $R_{DS(ON)}@2.5V$ $10m\Omega(Typ. 6.2m\Omega)$

HF Product.

/ Applications

DC/DC

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

/ Equivalent Circuit**/ Pinning**

PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	65	A
Peak Drain Current		I_{DM}	157	A
Gate-Source Voltage		V_{GS}	12	V
Avalanche Current		I_{AS}	19	A
Single Pulsed Avalanche Energy		E_{AS}	361	mJ
Total Power Dissipation		$P_D(T_c=25^\circ\text{C})$	52	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	
Thermal resistance, junction - ambient	t 10s	$R_{\theta JA}$	20	/W
	Steady-State		50	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1.55	

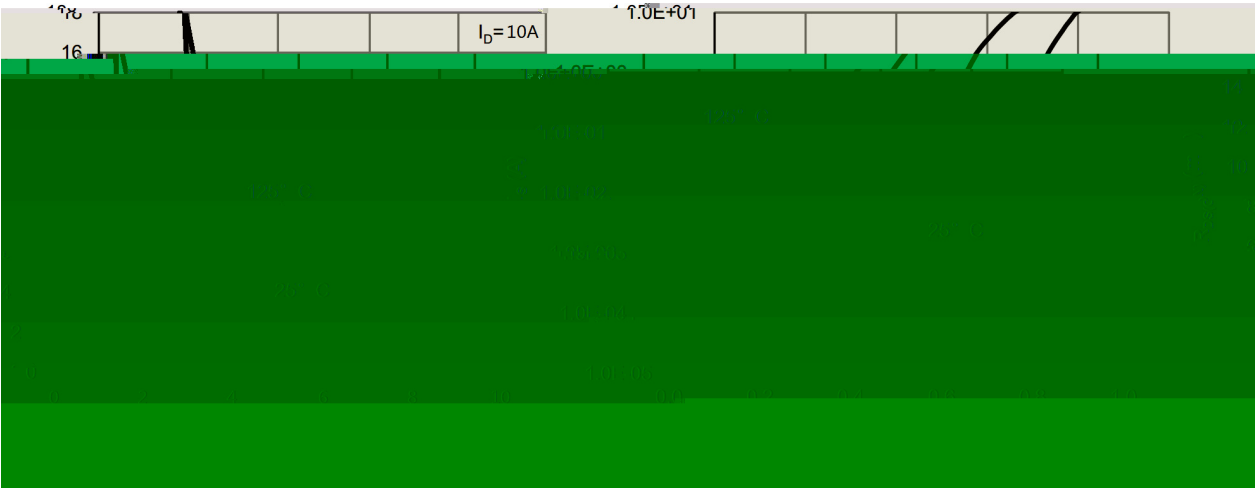
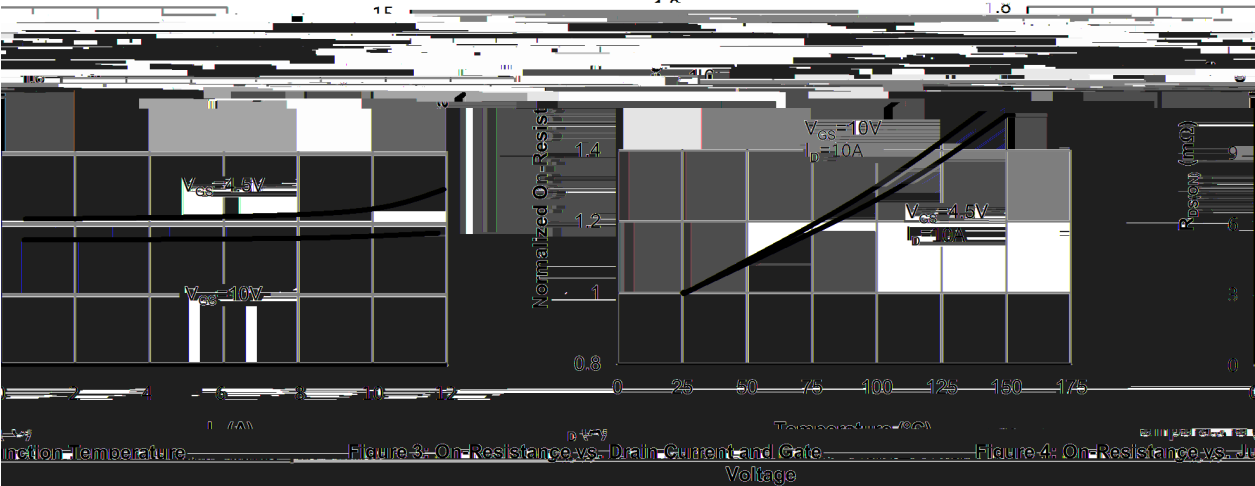
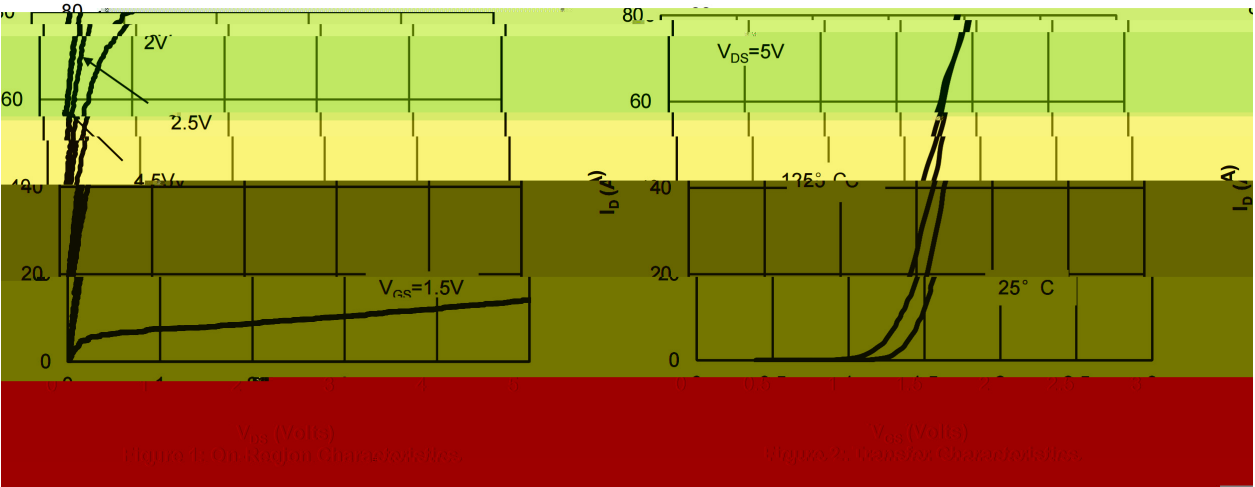
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	20	24		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 12V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	0.5	0.6	1.1	V
Forward On Voltage	V_{SD}	$I_S=1A$ $V_{GS}=0V$			1.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V$ $I_D=10A$		5	8	m Ω
		$V_{GS}=2.5V$ $I_D=10A$		6.2	10	m Ω
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		2		Ω
Input Capacitance	C_{iss}	$V_{GS}=0V$ $V_{DS}=15V$ $f=1.0MHz$		2000		pF
Output Capacitance	C_{oss}			170		pF
Reverse Transfer Capacitance	C_{rss}			160		pF

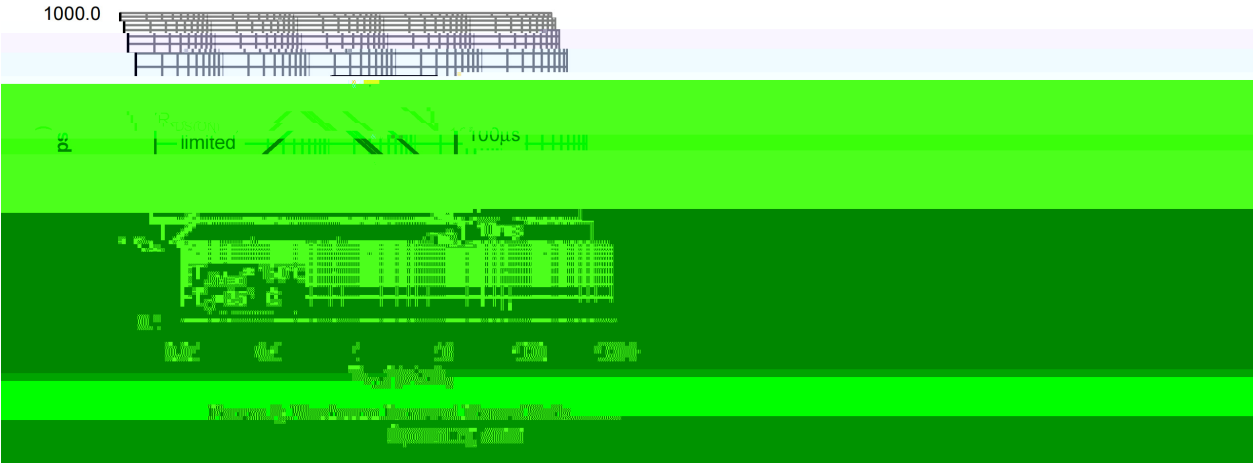
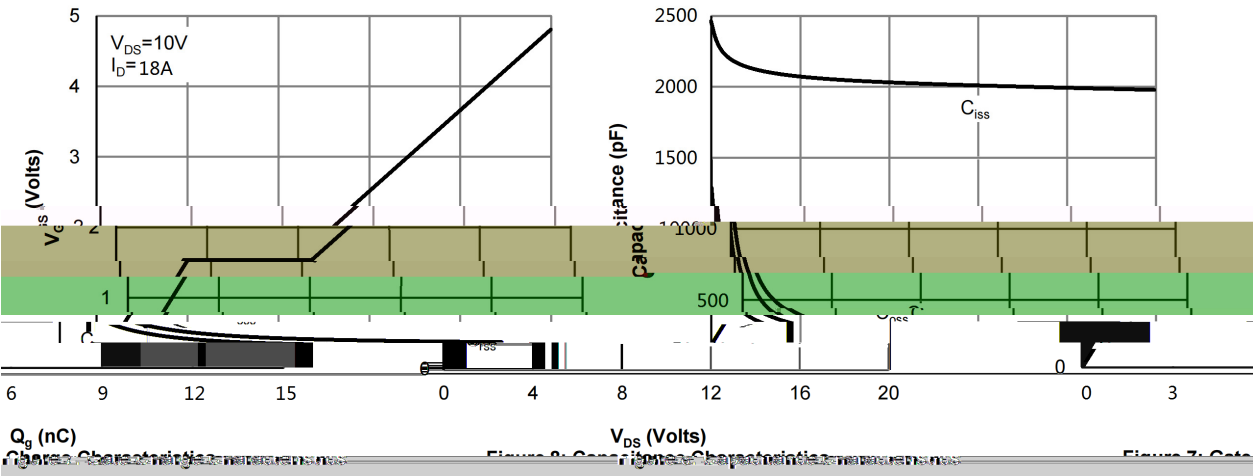
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	Q_g	$V_{GS}=4.5V, \quad V_{DS}=10V,$ $I_D=18A$		14.7		nC
Gate Source Charge	Q_{gs}			1.9		
Gate Drain Charge	Q_{gd}			4.7		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V \quad V_{DS}=10V$ $R_L=0.75\Omega \quad R_{GEN}=3\Omega$		13		ns
Turn-On Rise Time	t_r			23		ns
Turn-Off Delay Time	$t_{d(off)}$			60		ns
Turn-Off Fall Time	t_f			35		ns

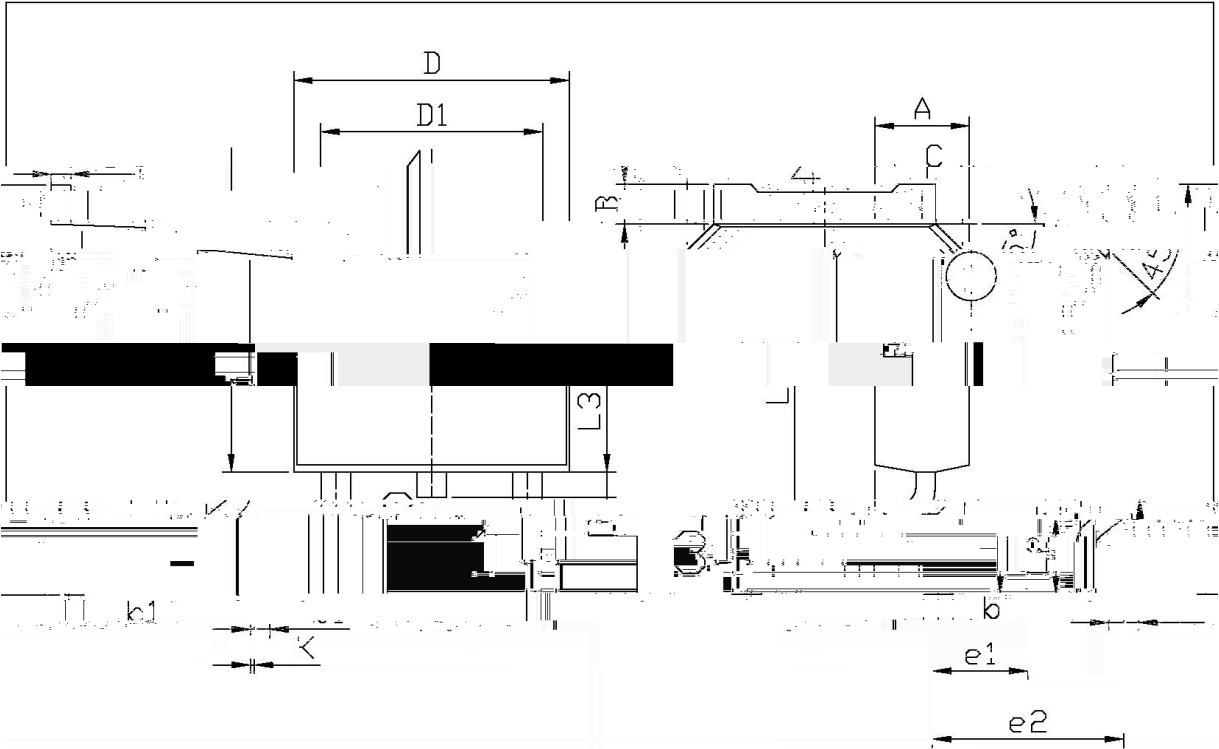
/ Electrical Characteristic Curve



/ Electrical Characteristic Curve



/ Package Dimensions

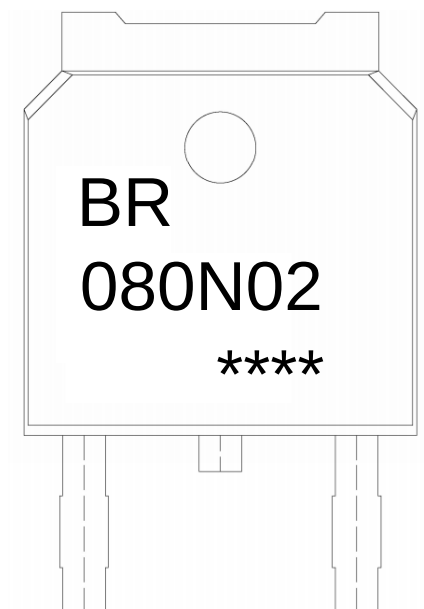


单位: mm

Symbol		Dimensions In Millimeters		Symbol		Dimensions In Millimeters	
		Min	Max			Min	Max
A		6.25	7.20	F		2.40	5.95
B		2.34	0.95	e		1.25	2.24
C		1.20	0.70	e1		0.60	1.40
D		10.35	0.45	e2		0.55	9.85
L3		0.15	0.55	K		1.20	2.00
k1		0.90	0.90	L		6.45	13.00
K		0.00	0.00	L1		5.70	7.10
L		0.00	0.00	L2		0.00	0.00
L1		0.00	0.00	L3		0.00	0.00
L2		0.00	0.00	L4		0.00	0.00
L3		0.00	0.00	L5		0.00	0.00
L4		0.00	0.00	L6		0.00	0.00
L5		0.00	0.00	L7		0.00	0.00
L6		0.00	0.00	L8		0.00	0.00
L7		0.00	0.00	L9		0.00	0.00
L8		0.00	0.00	L10		0.00	0.00
L9		0.00	0.00	L11		0.00	0.00
L10		0.00	0.00	L12		0.00	0.00
L11		0.00	0.00	L13		0.00	0.00
L12		0.00	0.00	L14		0.00	0.00
L13		0.00	0.00	L15		0.00	0.00
L14		0.00	0.00	L16		0.00	0.00
L15		0.00	0.00	L17		0.00	0.00
L16		0.00	0.00	L18		0.00	0.00
L17		0.00	0.00	L19		0.00	0.00
L18		0.00	0.00	L20		0.00	0.00
L19		0.00	0.00	L21		0.00	0.00
L20		0.00	0.00	L22		0.00	0.00
L21		0.00	0.00	L23		0.00	0.00
L22		0.00	0.00	L24		0.00	0.00
L23		0.00	0.00	L25		0.00	0.00
L24		0.00	0.00	L26		0.00	0.00
L25		0.00	0.00	L27		0.00	0.00
L26		0.00	0.00	L28		0.00	0.00
L27		0.00	0.00	L29		0.00	0.00
L28		0.00	0.00	L30		0.00	0.00
L29		0.00	0.00	L31		0.00	0.00
L30		0.00	0.00	L32		0.00	0.00
L31		0.00	0.00	L33		0.00	0.00
L32		0.00	0.00	L34		0.00	0.00
L33		0.00	0.00	L35		0.00	0.00
L34		0.00	0.00	L36		0.00	0.00
L35		0.00	0.00	L37		0.00	0.00
L36		0.00	0.00	L38		0.00	0.00
L37		0.00	0.00	L39		0.00	0.00
L38		0.00	0.00	L40		0.00	0.00
L39		0.00	0.00	L41		0.00	0.00
L40		0.00	0.00	L42		0.00	0.00
L41		0.00	0.00	L43		0.00	0.00
L42		0.00	0.00	L44		0.00	0.00
L43		0.00	0.00	L45		0.00	0.00
L44		0.00	0.00	L46		0.00	0.00
L45		0.00	0.00	L47		0.00	0.00
L46		0.00	0.00	L48		0.00	0.00
L47		0.00	0.00	L49		0.00	0.00
L48		0.00	0.00	L50		0.00	0.00
L49		0.00	0.00	L51		0.00	0.00
L50		0.00	0.00	L52		0.00	0.00
L51		0.00	0.00	L53		0.00	0.00
L52		0.00	0.00	L54		0.00	0.00
L53		0.00	0.00	L55		0.00	0.00
L54		0.00	0.00	L56		0.00	0.00
L55		0.00	0.00	L57		0.00	0.00
L56		0.00	0.00	L58		0.00	0.00
L57		0.00	0.00	L59		0.00	0.00
L58		0.00	0.00	L60		0.00	0.00
L59		0.00	0.00	L61		0.00	0.00
L60		0.00	0.00	L62		0.00	0.00
L61		0.00	0.00	L63		0.00	0.00
L62		0.00	0.00	L64		0.00	0.00
L63		0.00	0.00	L65		0.00	0.00
L64		0.00	0.00	L66		0.00	0.00
L65		0.00	0.00	L67		0.00	0.00
L66		0.00	0.00	L68		0.00	0.00
L67		0.00	0.00	L69		0.00	0.00
L68		0.00	0.00	L70		0.00	0.00
L69		0.00	0.00	L71		0.00	0.00
L70		0.00	0.00	L72		0.00	0.00
L71		0.00	0.00	L73		0.00	0.00
L72		0.00	0.00	L74		0.00	0.00
L73		0.00	0.00	L75		0.00	0.00
L74		0.00	0.00	L76		0.00	0.00
L75		0.00	0.00	L77		0.00	0.00
L76		0.00	0.00	L78		0.00	0.00
L77		0.00	0.00	L79		0.00	0.00
L78		0.00	0.00	L80		0.00	0.00
L79		0.00	0.00	L81		0.00	0.00
L80		0.00	0.00	L82		0.00	0.00
L81		0.00	0.00	L83		0.00	0.00
L82		0.00	0.00	L84		0.00	0.00
L83		0.00	0.00	L85		0.00	0.00
L84		0.00	0.00	L86		0.00	0.00
L85		0.00	0.00	L87		0.00	0.00
L86		0.00	0.00	L88		0.00	0.00
L87		0.00	0.00	L89		0.00	0.00
L88		0.00	0.00	L90		0.00	0.00
L89		0.00	0.00	L91		0.00	0.00
L90		0.00	0.00	L92		0.00	0.00
L91		0.00	0.00	L93		0.00	0.00
L92		0.00	0.00	L94		0.00	0.00
L93		0.00	0.00	L95		0.00	0.00
L94		0.00	0.00	L96		0.00	0.00
L95		0.00	0.00	L97		0.00	0.00
L96		0.00	0.00	L98		0.00	0.00
L97		0.00	0.00	L99		0.00	0.00
L98		0.00	0.00	L100		0.00	0.00
L99		0.00	0.00	L101		0.00	0.00
L100		0.00	0.00	L102		0.00	0.00
L101		0.00	0.00	L103		0.00	0.00
L102		0.00	0.00	L104		0.00	0.00
L103		0.00	0.00	L105		0.00	0.00
L104		0.00	0.00	L106		0.00	0.00
L105		0.00	0.00	L107		0.00	0.00
L106		0.00	0.00	L108		0.00	0.00
L107		0.00	0.00	L109		0.00	0.00
L108		0.00	0.00	L110		0.00	0.00
L109		0.00	0.00	L111		0.00	0.00
L110		0.00	0.00	L112		0.00	0.00
L111		0.00	0.00	L113		0.00	0.00
L112		0.00	0.00	L114		0.00	0.00
L113		0.00	0.00	L115		0.00	0.00
L114		0.00	0.00	L116		0.00	0.00
L115		0.00	0.00	L117		0.00	0.00
L116		0.00	0.00	L118		0.00	0.00
L117		0.00	0.00	L119		0.00	0.00
L118		0.00	0.00	L120		0.00	0.00
L119		0.00	0.00	L121		0.00	0.00
L120		0.00	0.00	L122		0.00	0.00
L121		0.00	0.00	L123		0.00	0.00



/ Marking Instructions



BR

080N02

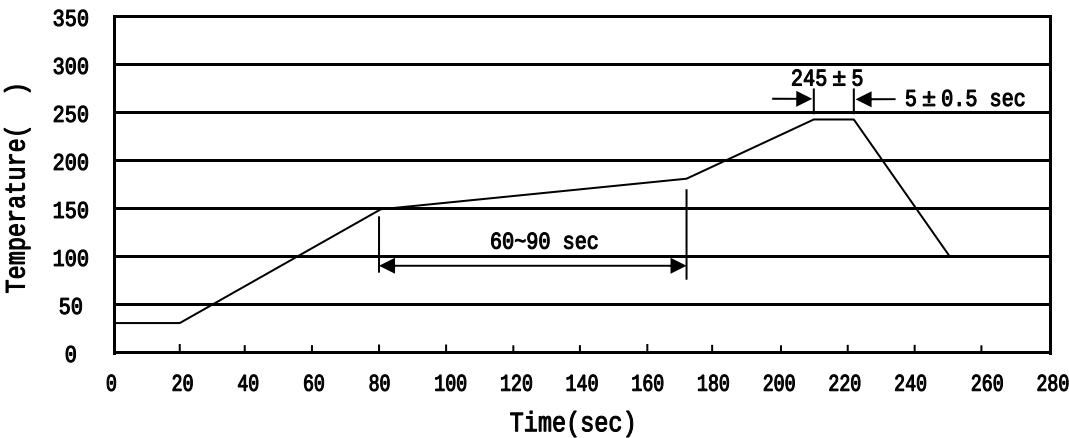
Note:

BR: Company Code

080N02: Product Type Code

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

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-------|-----|----|-----------|--|
| 1 | 150 | 180 | 60 | 90sec; | 1.Preheating:150~180 °C , Time:60~90sec. |
| 2 | 245±5 | | | 5±0.5sec; | 2.Peak Temp.:245±5 °C , Duration:5±0.5sec. |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 °C/sec. |

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ 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-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices