

**/ Descriptions**

TO-220          N      MOS  
N-CHANNEL MOSFET in a TO-220 Plastic Package.

**/ Features**

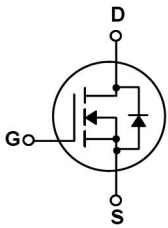
Low gate charge, low crss, fast switching, HF Product.

**/ Applications**

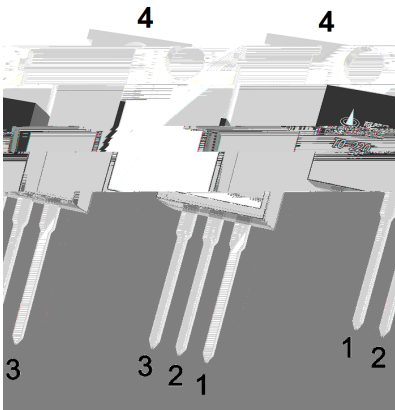
DC/DC

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

**/ Equivalent Circuit**



**/ Pinning**



PIN1 G          PIN 2 4 D      PIN 3 S

**/ Marking**

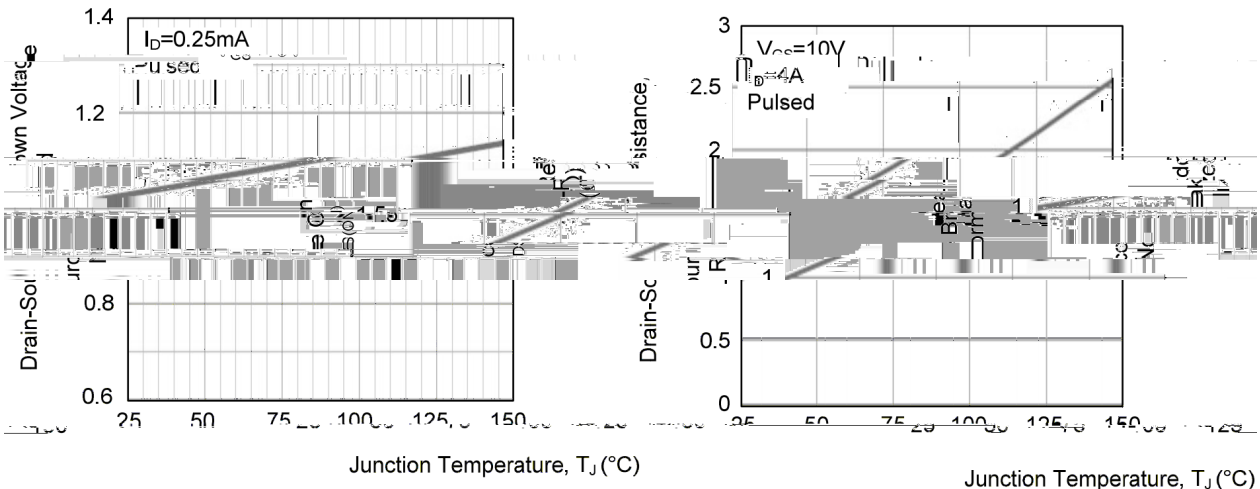
See Marking Instructions.

**/ Absolute Maximum Ratings(Ta=25 )**

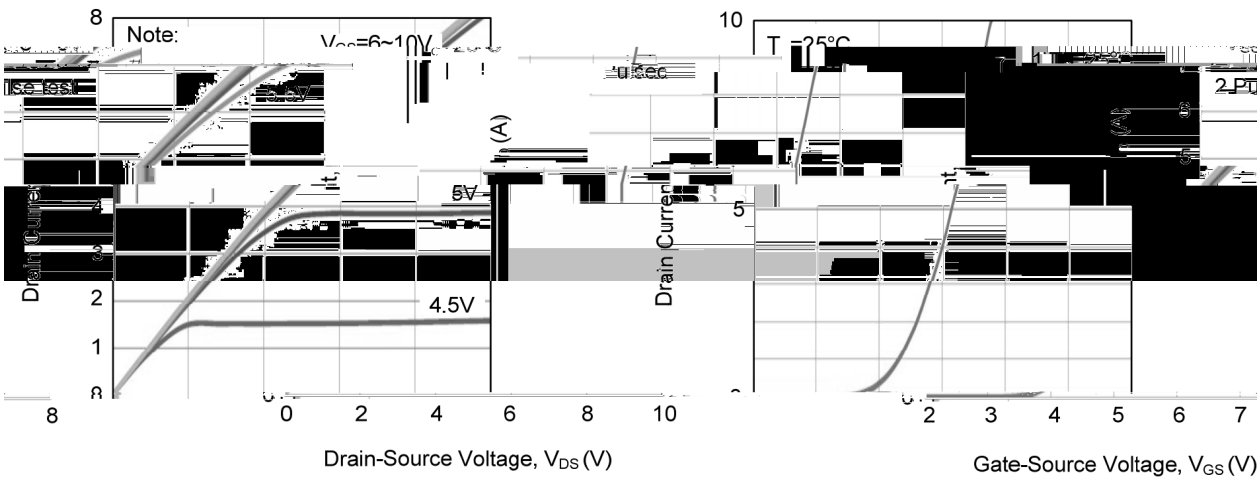
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DSS</sub>	650	V
Drain Current	I <sub>D</sub> (Tc=25 )	8	A
Drain Current - Pulsed	I <sub>DM</sub>	32	A
Gate-Source Voltage	V <sub>GSS</sub>	±30	V
Single Pulsed Avalanche Energy	E <sub>AS</sub>	597	mJ
Avalanche Current	I <sub>AR</sub>	10.5	A
Power Dissipation	P <sub>D</sub> (Tc=25 )	110	W
Operating and Storage Temperature Range	T <sub>J</sub> ,T <sub>STG</sub>	-55 to 150	
Thermal resistance, junction- case	R <sub>θJC</sub>	1.14	/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	650	700		V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =650V V <sub>GS</sub> =0V			1.0	μA
Gate-Body Leakage Current, Forward	I <sub>GSS</sub>	V <sub>GS</sub> =±30V V <sub>DS</sub> =0V			±0.1	μA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =250μA	2.0	2.7	4.0	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V I <sub>D</sub> =4.0A		1.1	1.25	Ω
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V I <sub>S</sub> =8.0A			1.4	V
Input Capacitance	C <sub>iSS</sub>	V <sub>DS</sub> =25V V <sub>GS</sub> =0V f=1.0MHz		1100		pF
Output Capacitance	C <sub>oSS</sub>			100		
Reverse Transfer Capacitance	C <sub>rSS</sub>			12		
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> =480V, V <sub>GS</sub> =10V I <sub>D</sub> =8.0A I <sub>G</sub> =1mA		24.5		pF
Gate-Source Charge	Q <sub>GS</sub>			5.8		pF
Gate-Drain Charge	Q <sub>GD</sub>			6.5		pF
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =100V V <sub>GS</sub> =10V I <sub>D</sub> =8A R <sub>G</sub> =25Ω		11		ns
Turn-On Rise Time	t <sub>r</sub>			20.5		
Turn-Off Delay Time	t <sub>d(off)</sub>			80		
Turn-Off Fall Time	t <sub>f</sub>			32.3		

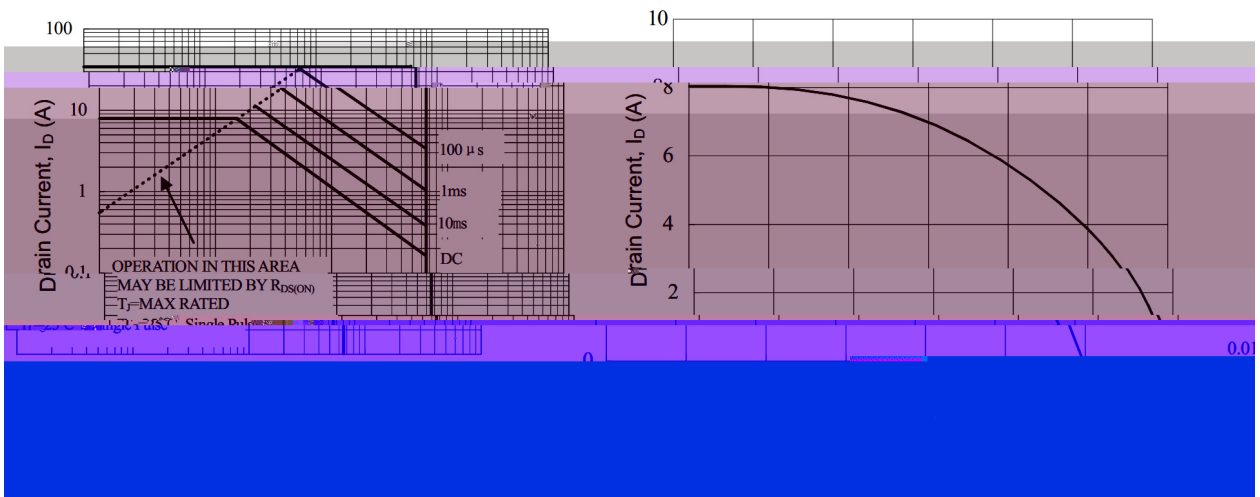
**/ Electrical Characteristic Curve**



1. Breakdown Voltage vs. Junction Temperature  
2. Drain-Source Resistance vs. Junction Temperature



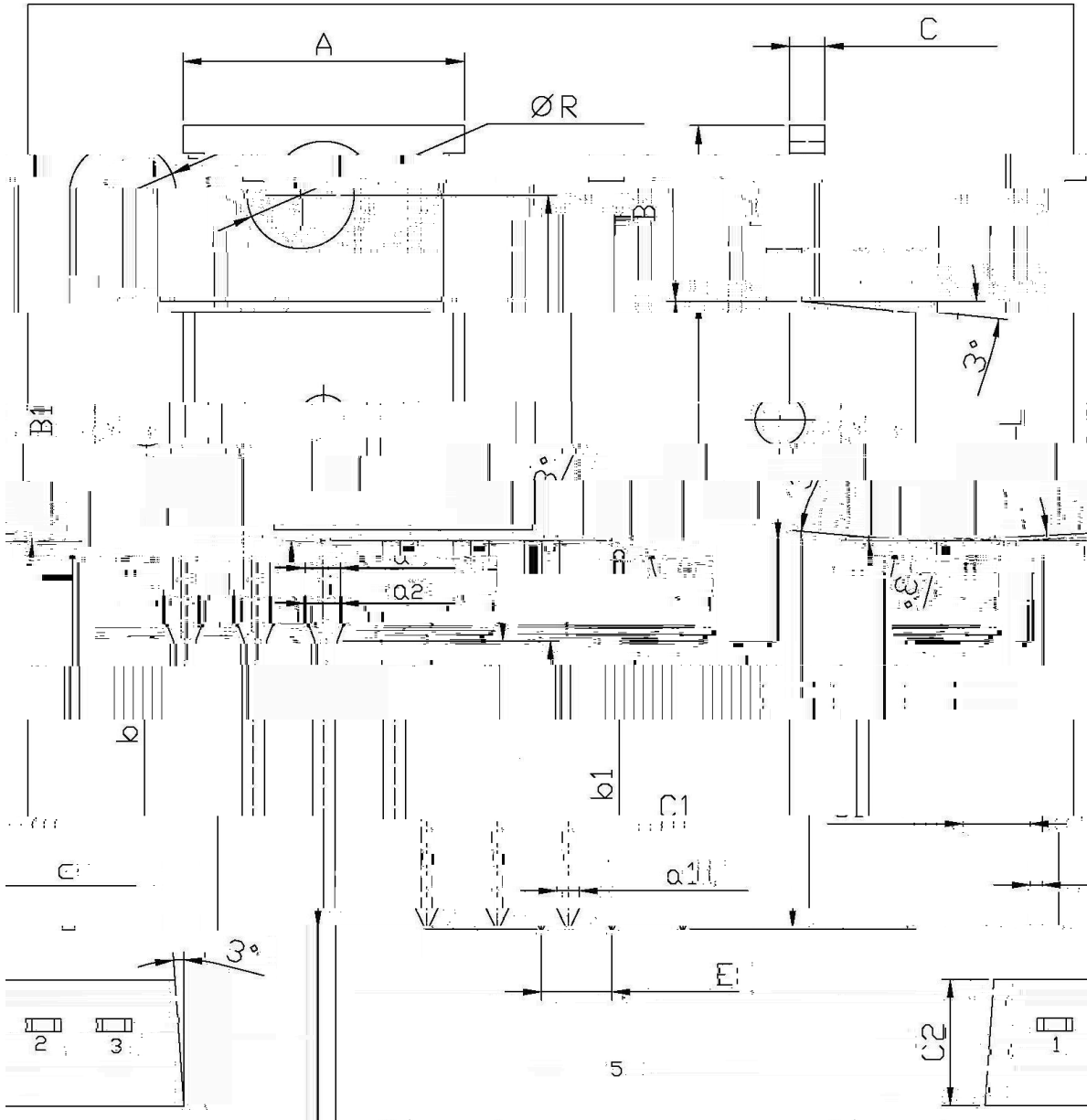
3. Drain Current vs. Drain-Source Voltage  
4. Drain Current vs. Gate-Source Voltage



/ Package Dimensions

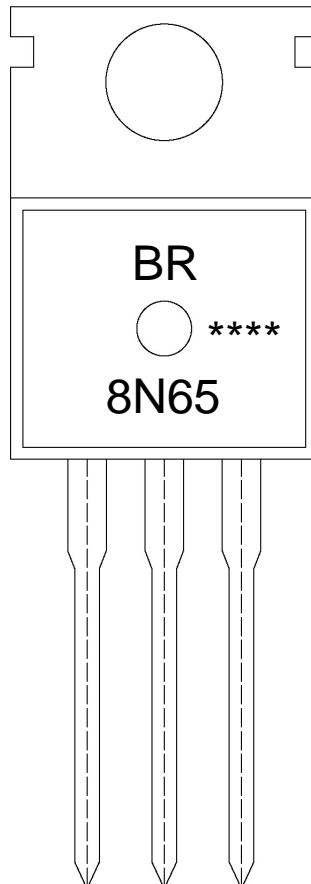
TO-220

单位: mm



Dimensions In Millimeters		Dimensions In Millimeters	
Max	Symbol	Min	Symbol
1.4	A	0.8	C
6.7	R	3.64	B
9.4		16.1	B1
2.6		13.6	a1

**/ Marking Instructions**



BR

8N65

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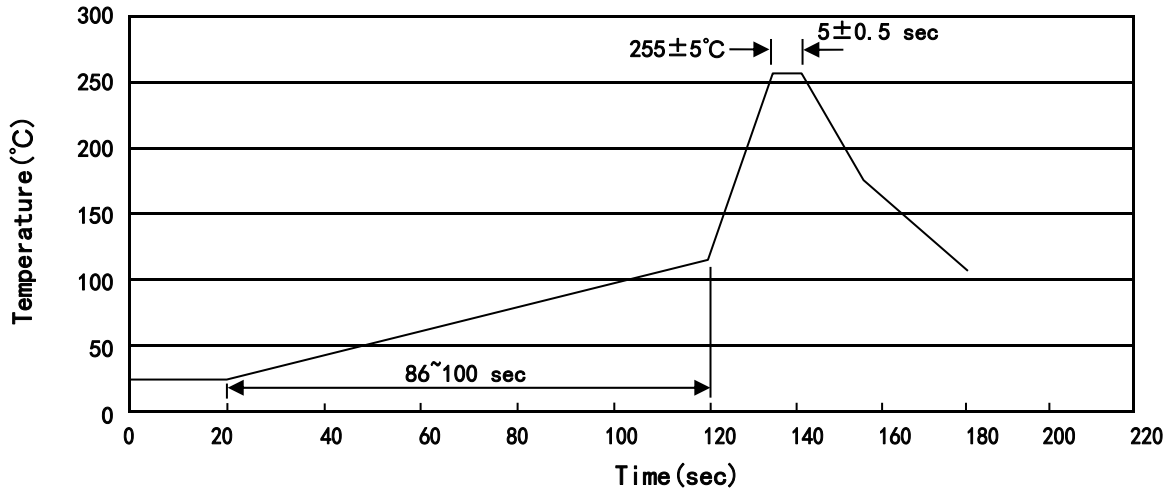
Note:

BR: Company Code

8N65: 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.

/ BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-220/F	200	10	2,000	5	10,000	135x190	237x172x102	560x245x195

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-220/F	50	20	1,000	5	5,000	532x31.4x5.5	555x164x50	575x290x180

/ Notices