/ 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 8mΩ(Typ. 5mΩ)

$R_{DS(ON)}$@2.5V 10mΩ(Typ. 6.2mΩ)

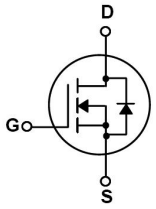
HF Product.

/ Applications

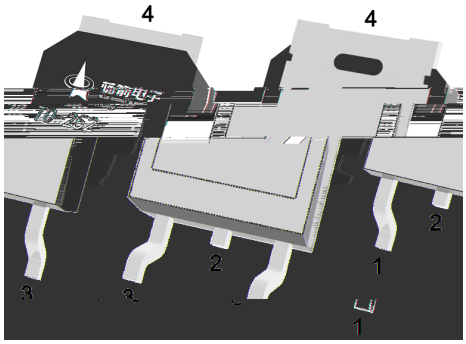
DC/DC

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_{DSS}	20	V
Drain Current		I_D(Tc=25)	65	A
Peak Drain Current		I_{DM}	157	A
Gate-Source Voltage		V_{GSS}	12	V
Avalanche Current		I_{AS}	19	A
Single Pulsed Avalanche Energy		E_{AS}	361	mJ
Total Power Dissipation		P_D(Tc=25)	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_{DSS}	V_{GS}=0V I_D=250μA	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}=±12V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	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	mΩ
		V_{GS}=2.5V I_D=10A		6.2	10	mΩ
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		2		Ω
Input Capacitance	C_{iss}	V_{GS}=0V f=1.0MHz V_{DS}=15V		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, 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 V_{DS}=10V R_L=0.75Ω R_{GEN}=3Ω		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

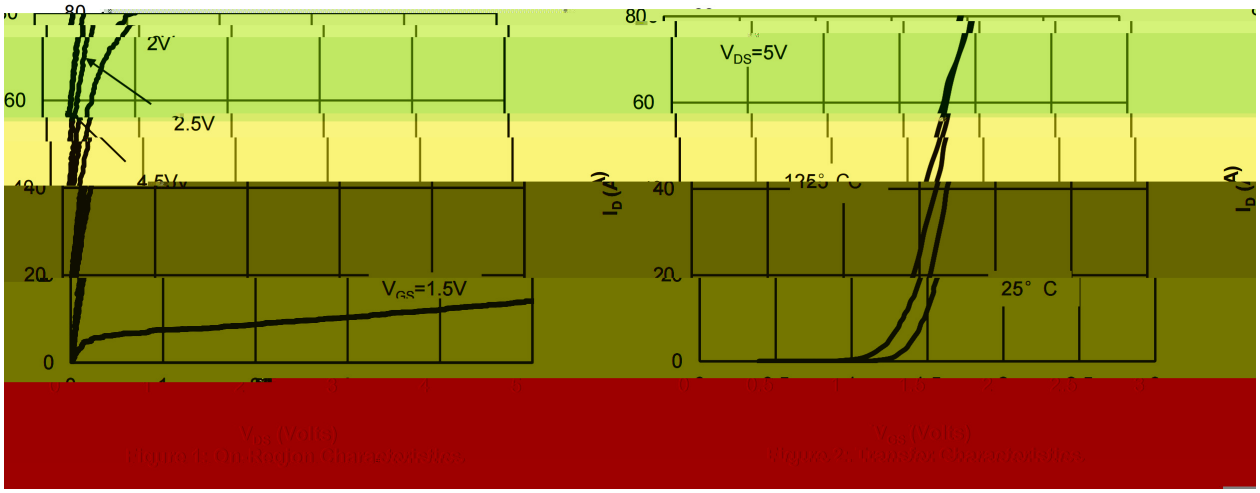


Figure 1: On-Region Characteristics

Figure 2: Transfer Characteristics

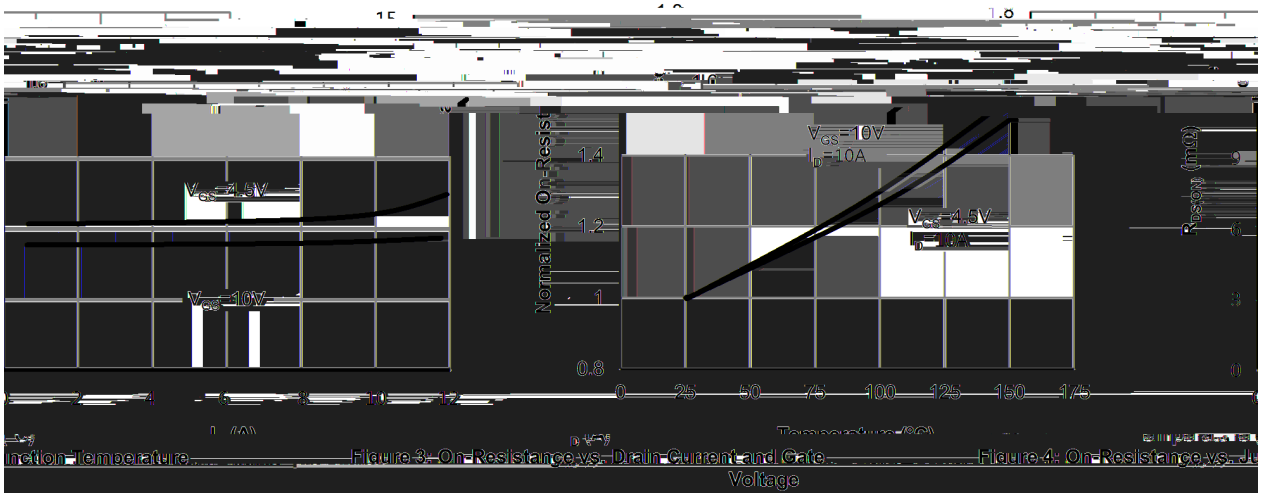
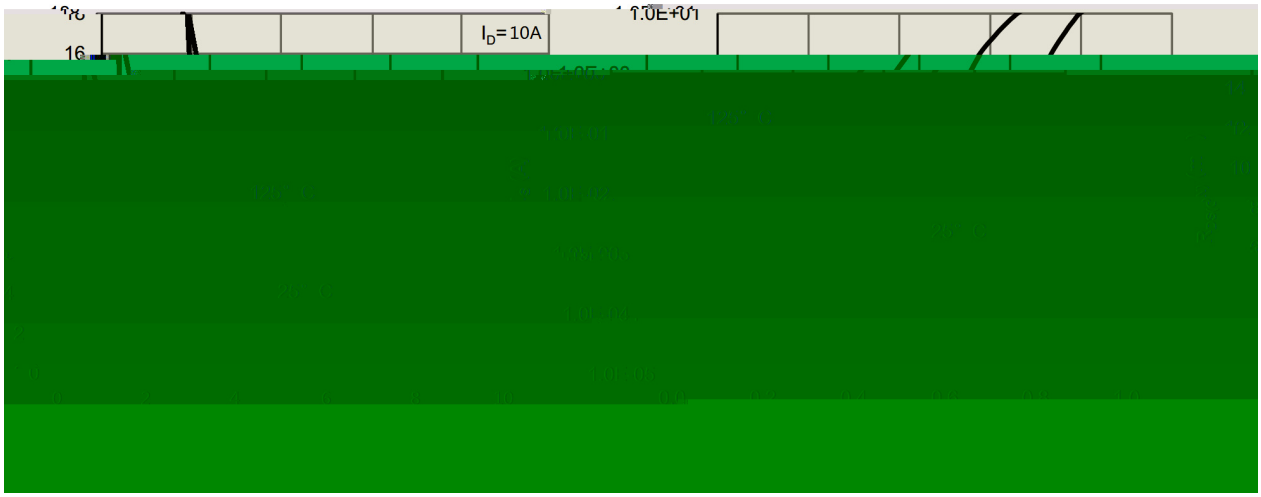


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Junction Temperature



/ Electrical Characteristic Curve

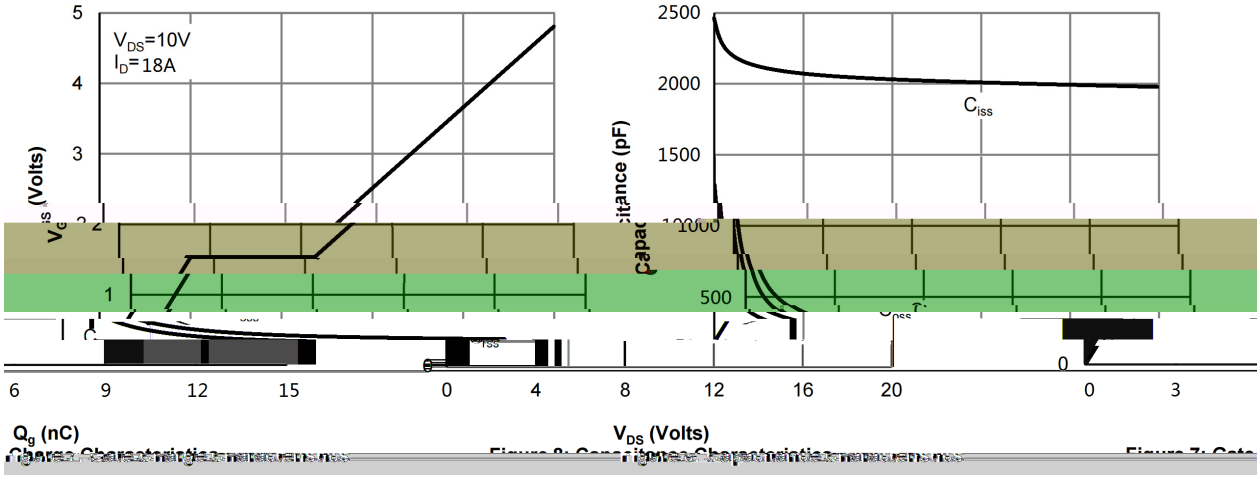


Figure 7: Gate Charge Characteristics

Figure 8: Capacitance Characteristics

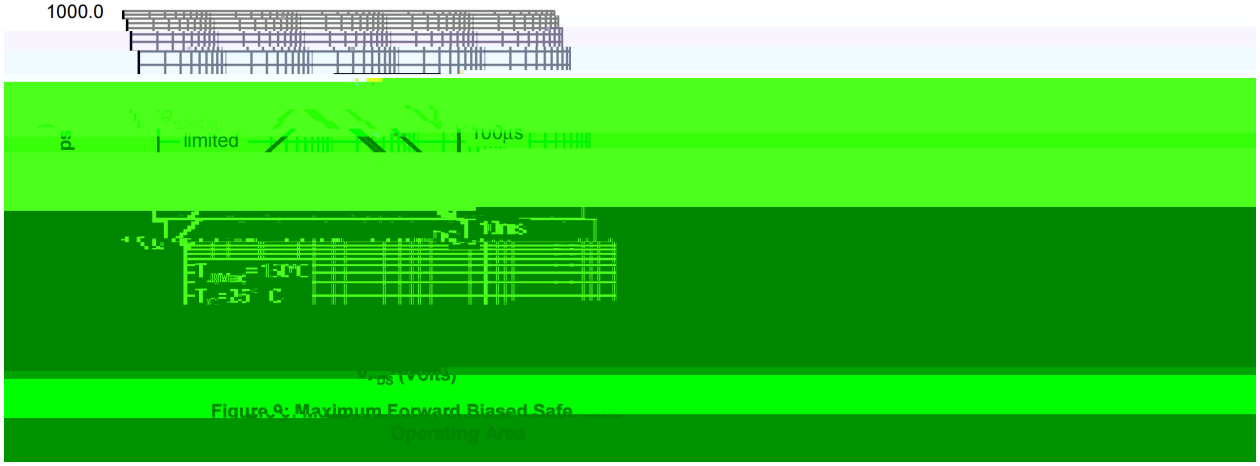
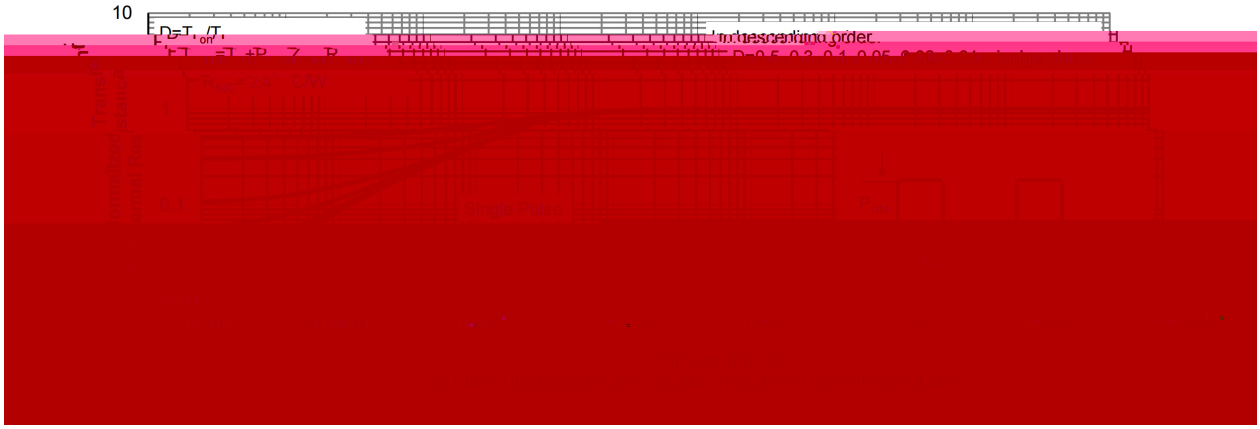
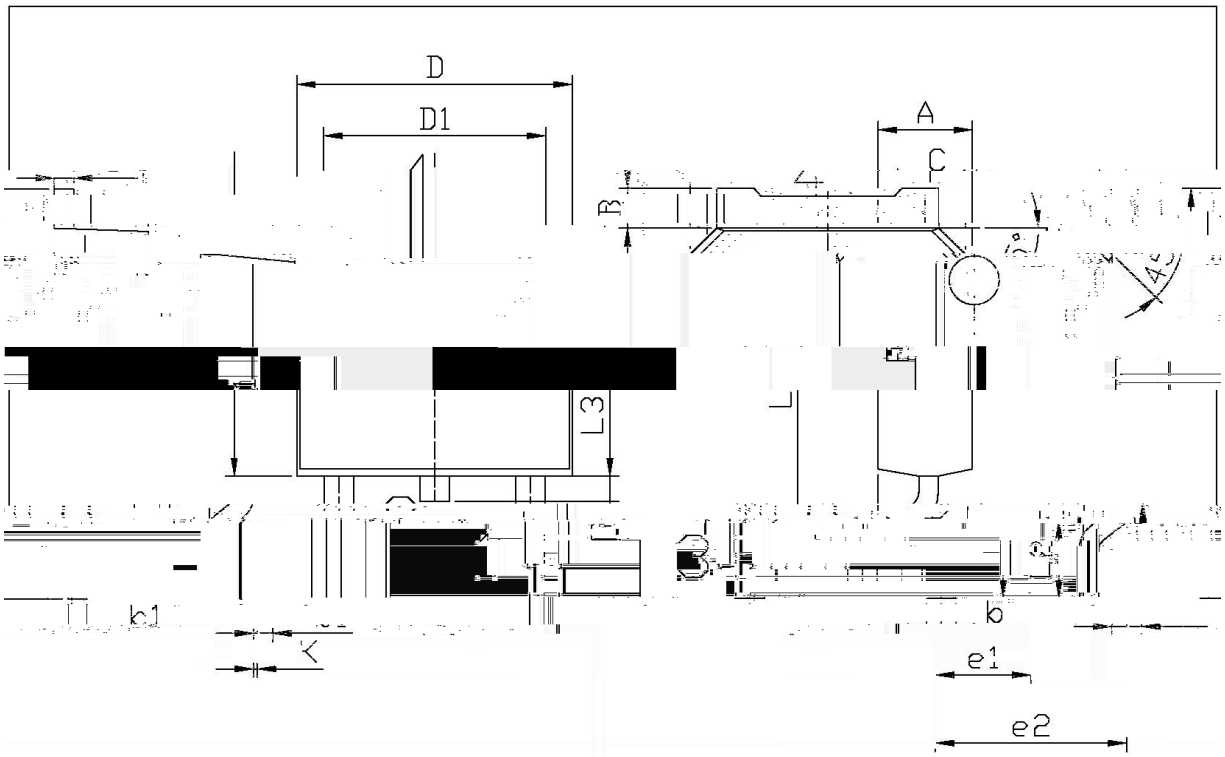


Figure 9: Maximum Forward Biased Safe Operating Area



/ Package Dimensions

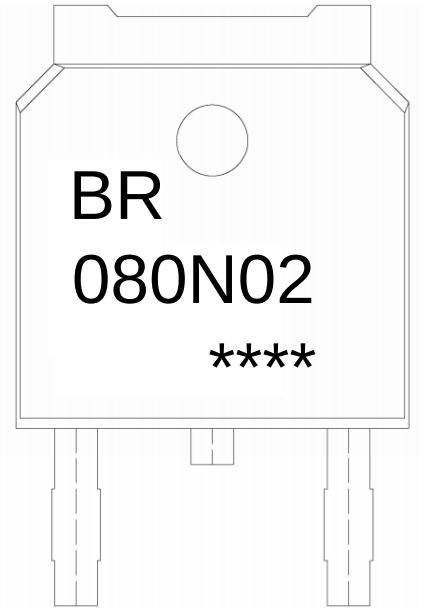


单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20		F		5.95
B	0.95		e	2.24	
b	0.70		L	9.85	
C	0.45	0.55	L1		
D	6.45		L2	2.00	
D1	6.75		L3		
E	5.10				

TO-252

/ Marking Instructions



BR

080N02

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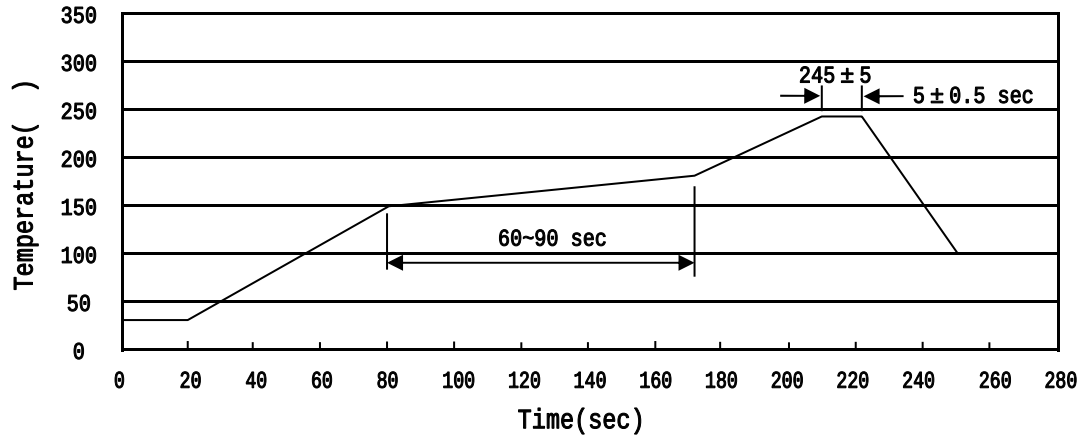
Note:

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	, Time:60~90sec.
2		245±5			5±0.5sec;	2.Peak Temp.:245±5	, Duration:5±0.5sec.
3				2 10	/sec.	3. Cooling Speed: 2~10	/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 mm³)
	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 mm³)
	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