

/ Descriptions

TO-251 P MOS P-CHANNEL MOSFET in a TO-251 Plastic Package.

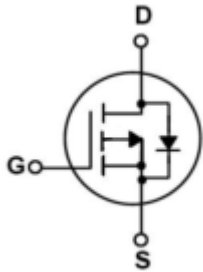
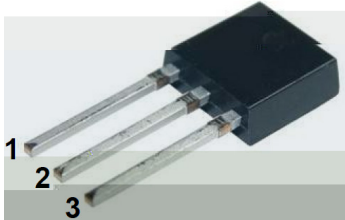
/ Features $R_{DS(on)}$ C_{rss}

Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast switching.

/ Applications

DC/DC

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

/ Equivalent Circuit**/ Pinning**

PIN1 G

PIN 2 D

PIN 3 S

/ h_{FE} Classifications & Marking

See Marking Instructions.

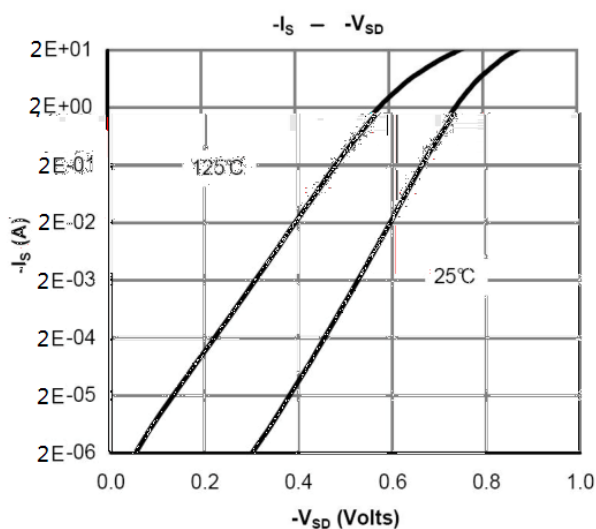
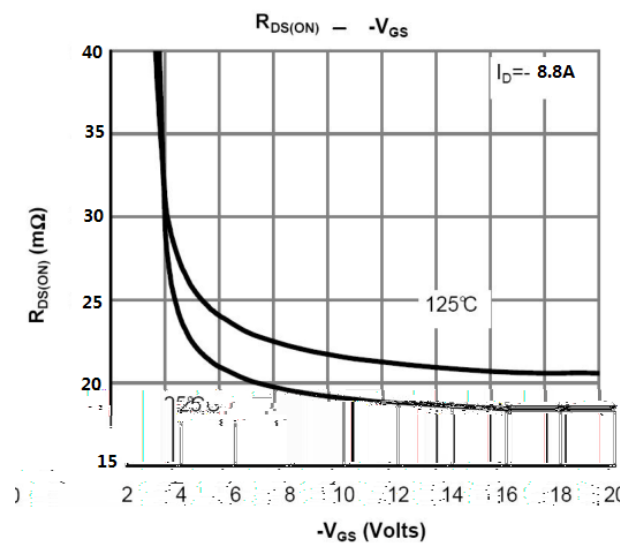
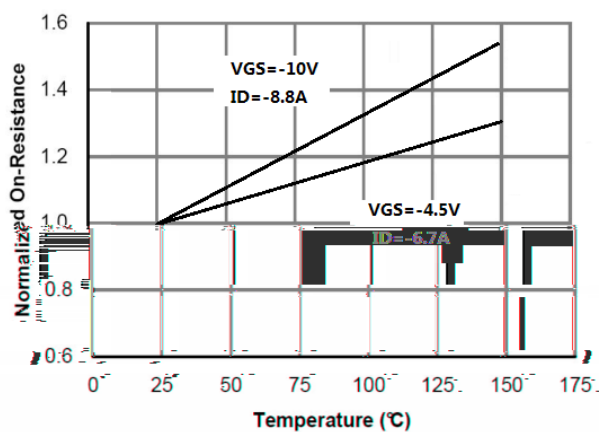
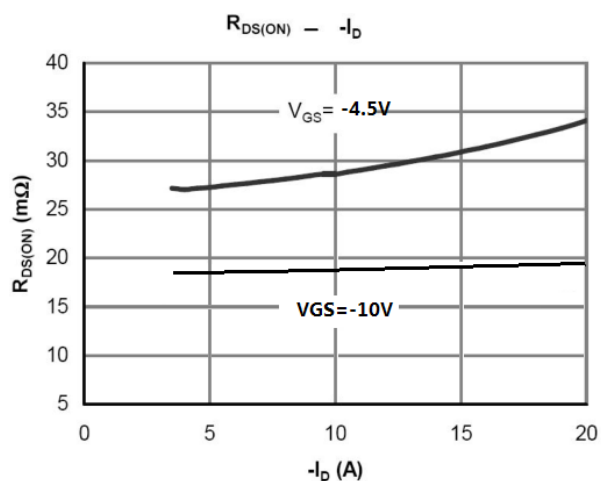
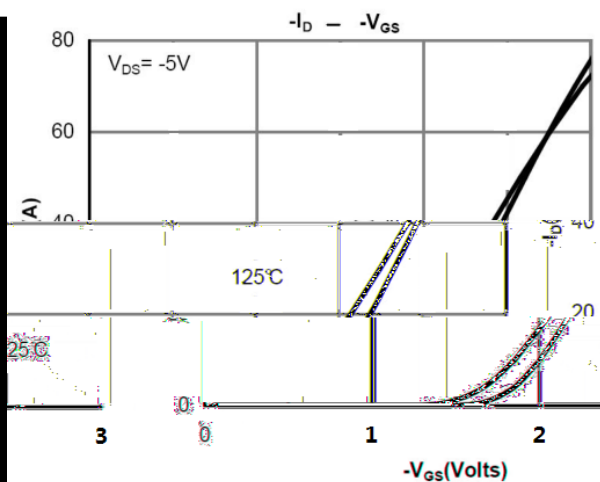
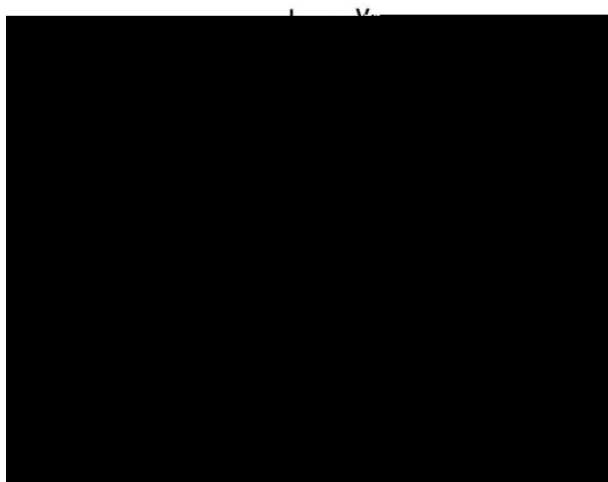
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	-20	A
Drain Current - Pulsed	I_{DM}	-50	A
Gate-Source Voltage	V_{GS}	± 20	V
Single Pulsed Avalanche Energy	E_{AS}	50	mJ
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	30	W
Junction Temperature Range	T_j	150	
Storage Temperature Range	T_{stg}	-55 ~ 150	

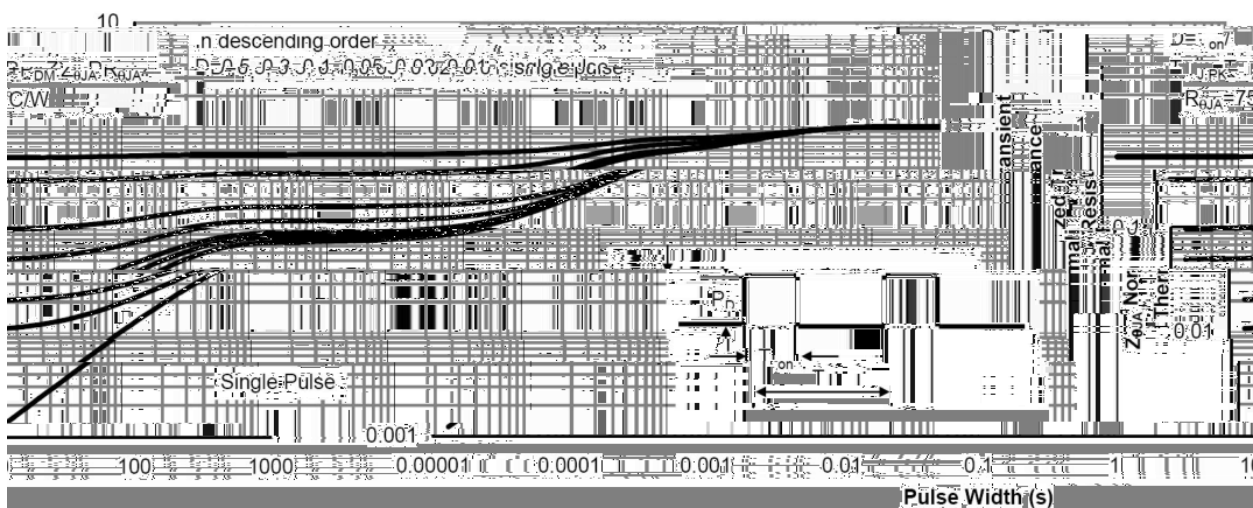
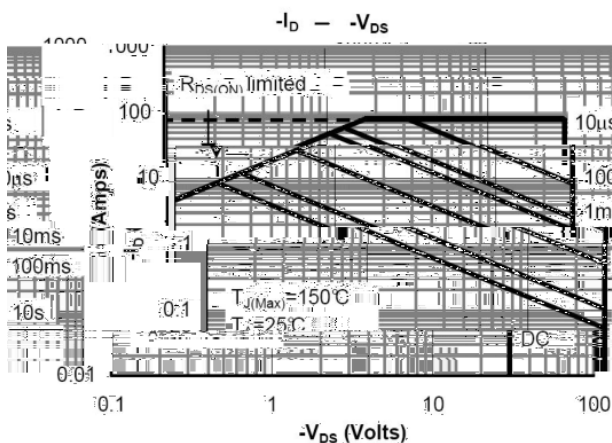
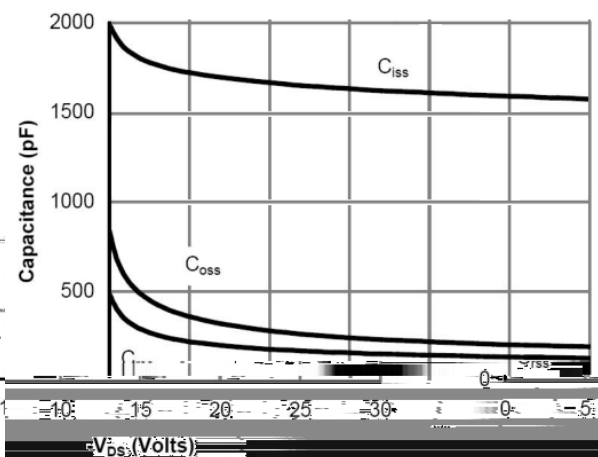
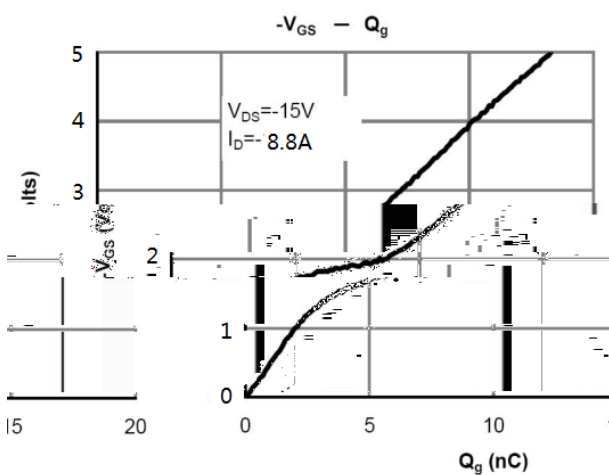
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=-250\mu A$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V$ $V_{GS}=0V$			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-1		-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)1}$	$V_{GS}=-10V$ $I_D=-8.8A$		18	23	m Ω
	$R_{DS(on)2}$	$V_{GS}=-4.5V$ $I_D=-6.7A$		27	35	m Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=-2.1A$		-0.73	-1.2	V
Input Capacitance	C_{iss}	$V_{DS}=-15V$ $V_{GS}=0V$ $f=1.0MHz$		1604		pF
Output Capacitance	C_{oss}			408		
Reverse Transfer Capacitance	C_{rss}			202		
Total Gate Charge	Q_g	$V_{DS}=-15V$ $I_D=-8.8A$ $V_{GS}=-5V$		17	24	nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-15V$ $I_D=-1A$ $R_G=6\Omega$		13	23	ns
Turn-On Rise Time	t_r			13.5	24	
Turn-Off Delay Time	$t_{d(off)}$			42	68	
Turn-Off Fall Time	t_f			25	40	

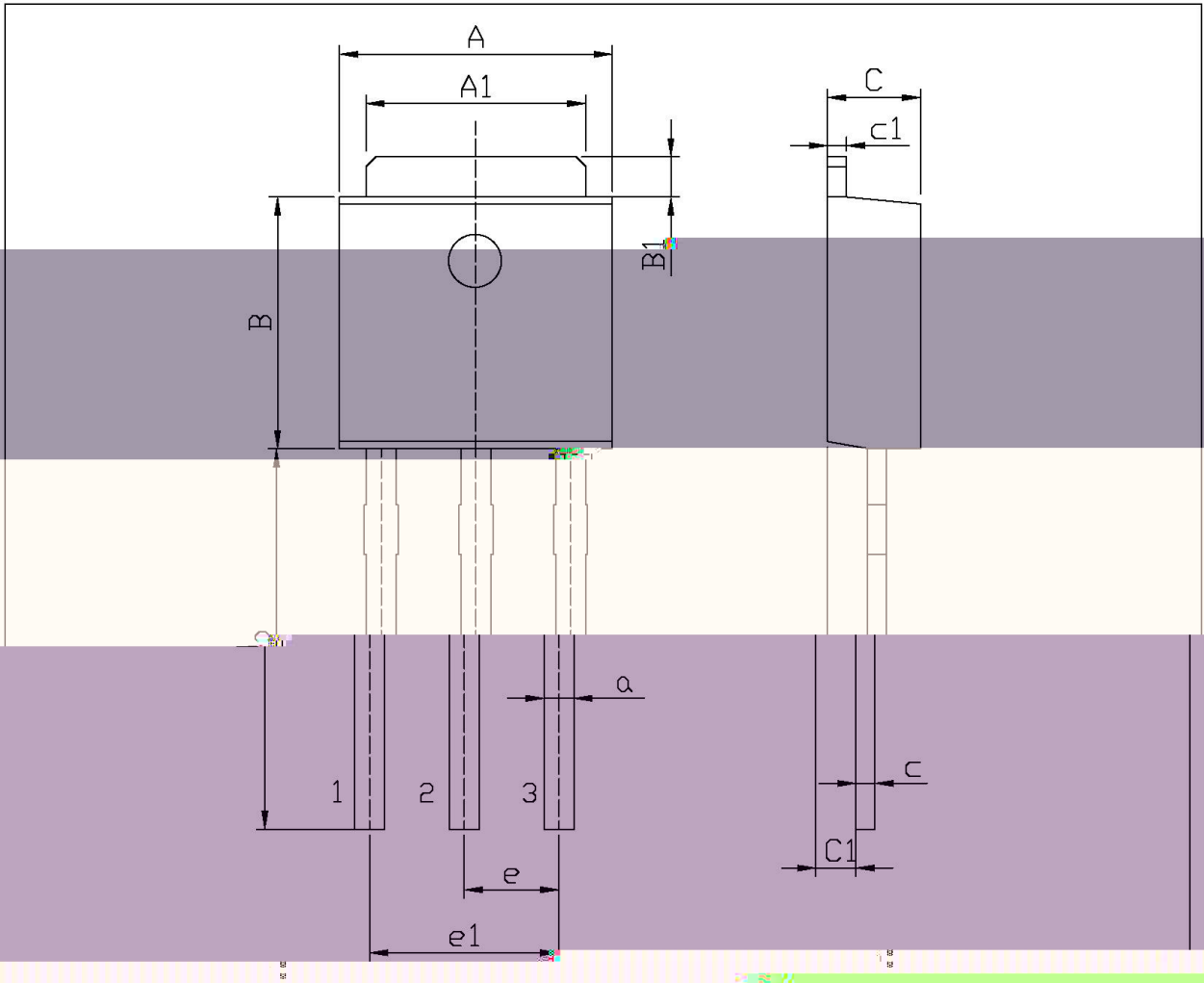
/ Electrical Characteristic Curve



/ Electrical Characteristic Curve



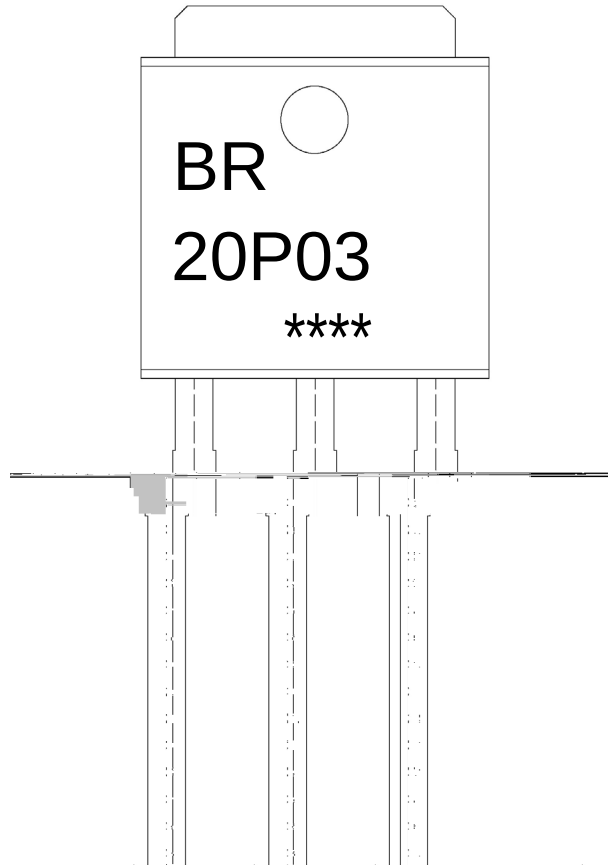
/ Package Dimensions



Symbol	Dimensions in Millimeters		Symbol	Dimensions in Millimeters				Symbol
	Min	Max		Min	Max			
A	6.45	6.75	a	0.50	0.75			



/ Marking Instructions



BR

20P03

Note:

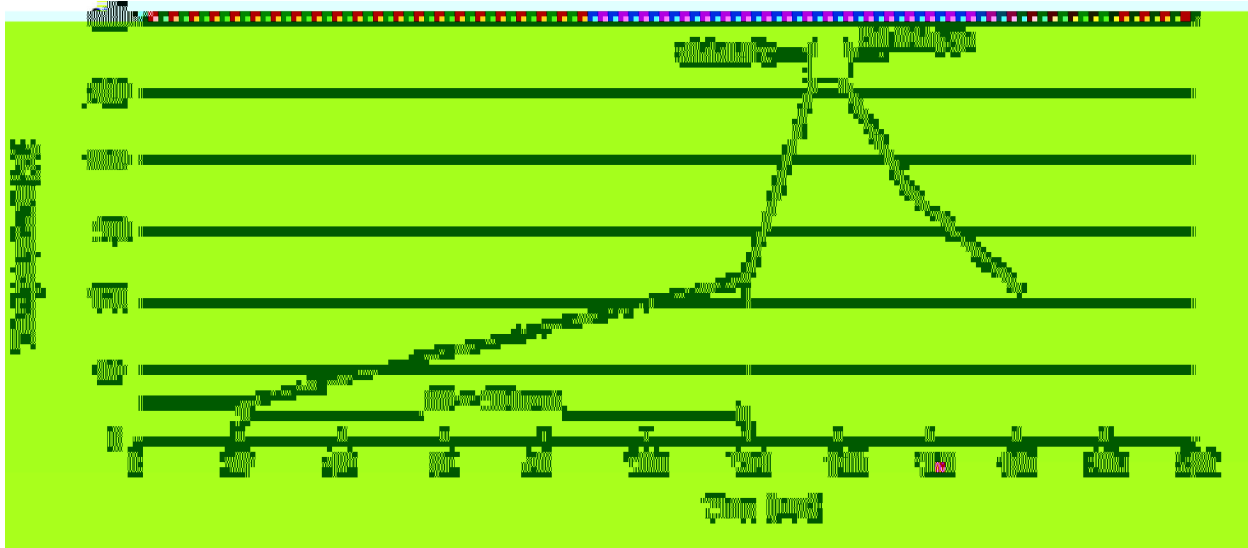
BR: Company Code

20P03: Product Type Code.

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



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



Note:

- 1 25 150 60 90sec;
 2 255±5 5±0.5sec;
 3 2 10 /sec.

- 1.Preheating:25~150 , Time:60~90sec.
 2.Peak Temp.:255±5 , Duration:5±0.5sec.
 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.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
TO-251	1,000	10	10,000	5	50,000	135×190	237×172×102	560×245×195

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	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-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices