BRCS350P06DP

Rev.A Nov.-2024

/ Descriptions

TO-252 P

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

/ Features

V_{DS} (V) = -60V I_D =-30A (V_{GS} = ± 20V)

$R_{DS(ON)}$@-10V ≤ 35mΩ (Typ.26mΩ)

$R_{DS(ON)}$@-4.5V ≤ 50mΩ (Typ.31mΩ)

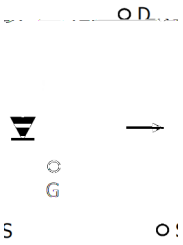
HF Product.

/ Applications

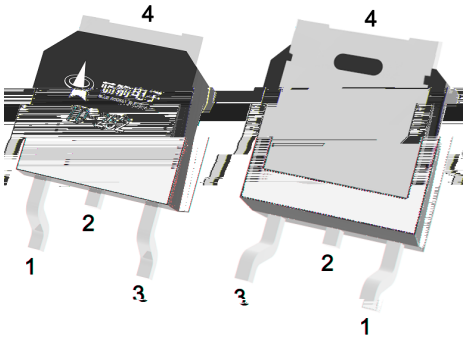
DC/DC

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 PIN 4 D

/ Marking

See Marking Instructions.

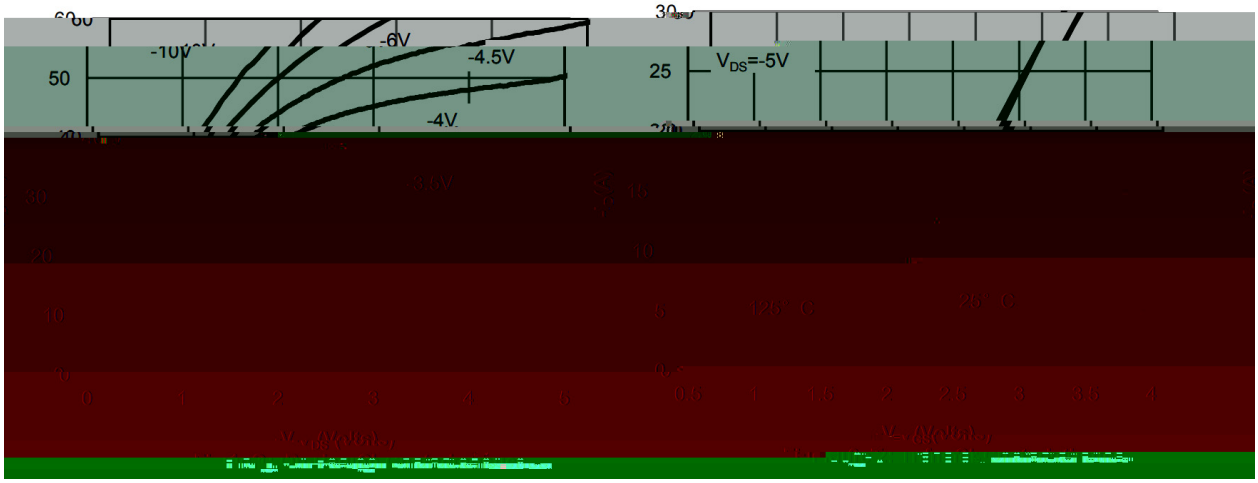
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-60	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D (T_c=25°C)	-30	A
Pulsed Drain Current	I_{DM}	-94.5	A
Avalanche Current	I_{AS}	-17.5	A
Avalanche energy L=0.5mH	E_{AS}	320	mJ
Power Dissipation for Single Operation	P_D (T_c=25)	50	W
Maximum Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55 150	℃
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	50	℃/W
Thermal Resistance- Junction-to-Case	$R_{\theta JC}$	2.5	℃/W

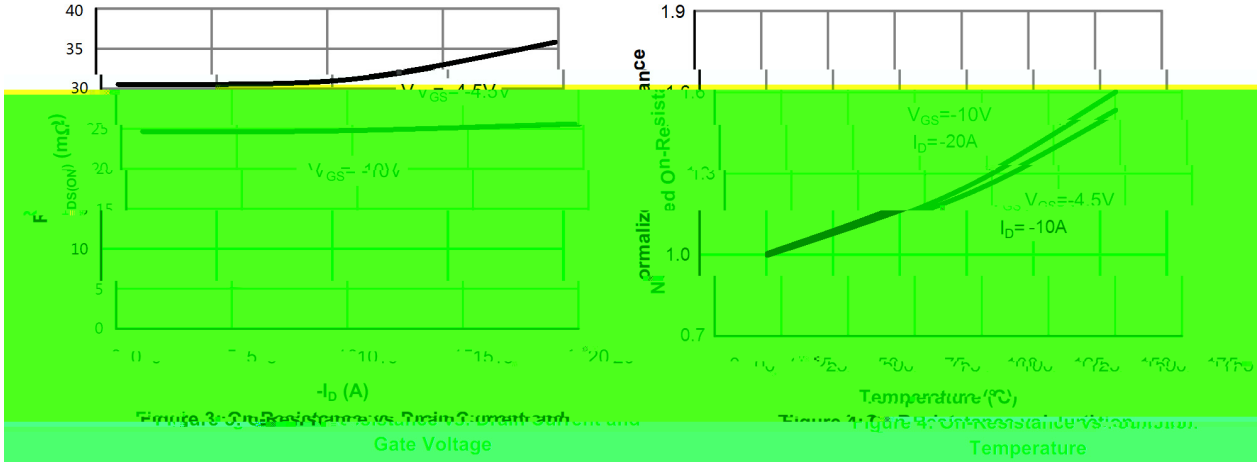
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA V_{GS}=0V	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V V_{GS}=0V			-1.0	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS I_D=-250μA	-1.0	-1.6	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V I_D=-20A		26	35	mΩ
		V_{GS}=-4.5V I_D=-10A		31	50	
Diode Forward Voltage	V_{SD}	I_S=-1A V_{GS}=0V			-1.0	V
Gate Resistance	R_g	V_{GS}=0V V_{DS}=0V				

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=-10V V_{DS}=-30V I_D=-6.2A		46.5		nC
Total Gate Charge	$Q_{g(4.5V)}$			22.7		
Gate-Source Charge	Q_{gs}			9.1		
Gate-Drain Charge	Q_{gd}			9.2		
Turn-on Delay Time	$t_{d(ON)}$	V_{GS}=-10V V_{DS}=-30V R_L=4.7Ω R_{GEN}=3Ω		9.8		ns
Turn-on Rise Time	t_r			6.1		
Turn-off Delay Time	$t_{d(OFF)}$			44		
Turn-off Fall Time	t_f			12.7		

/ Electrical Characteristic Curve





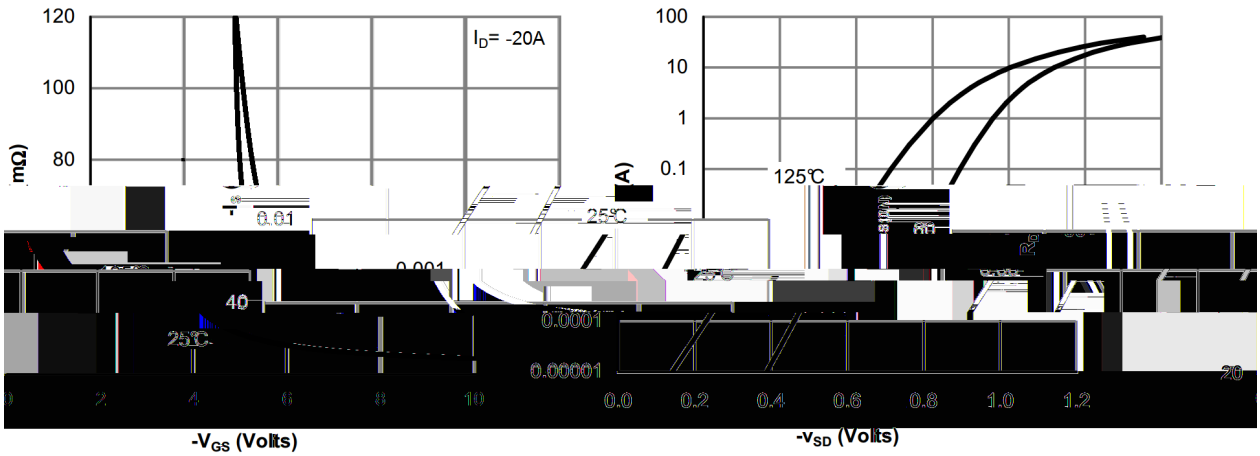


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Characteristics

/ Electrical Characteristic Curve

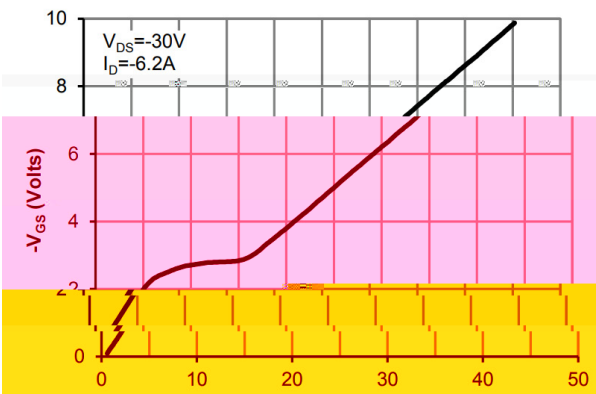


Figure 7: Gate-Charge Characteristics

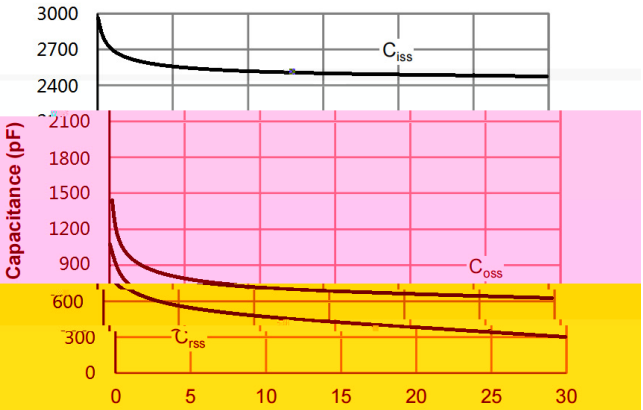


Figure 8: Capacitance Characteristics

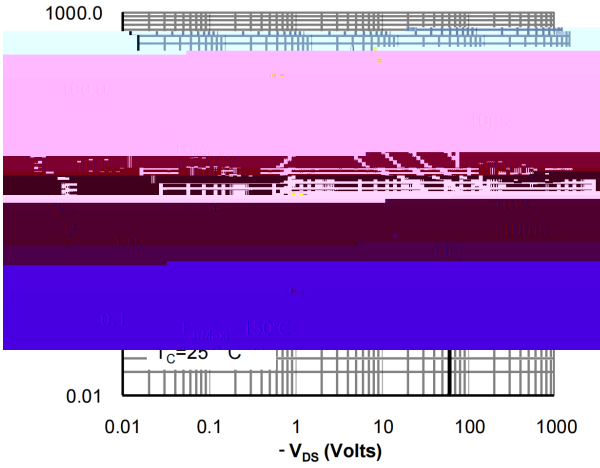


Figure 9: Maximum Forward Biased Safe Operating Area

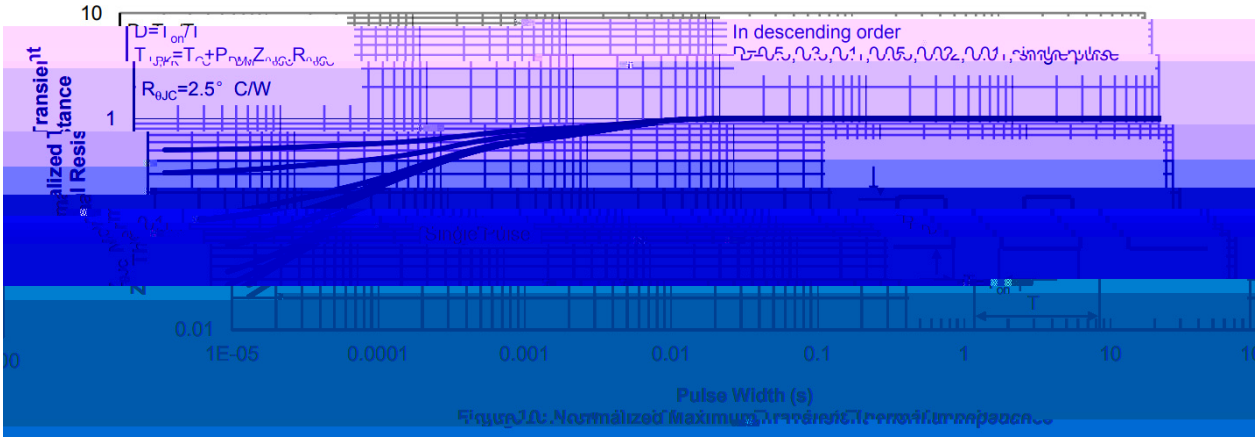
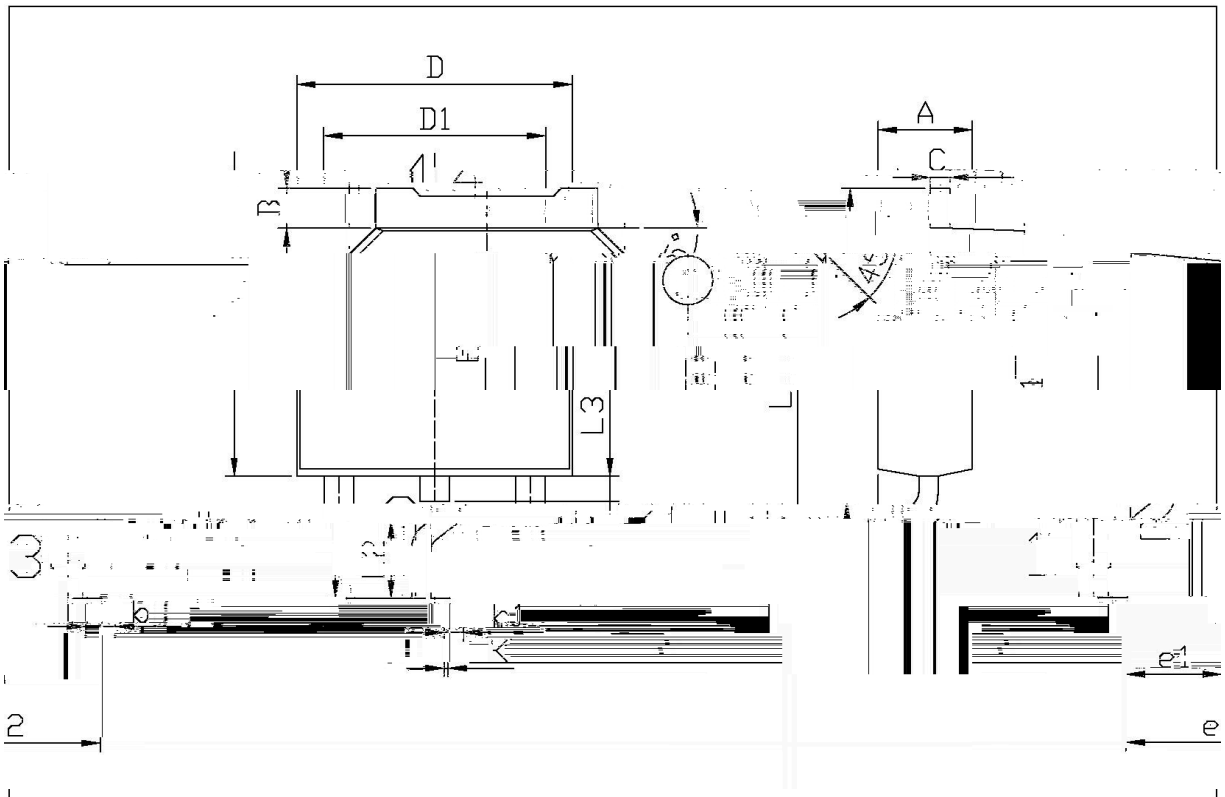


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

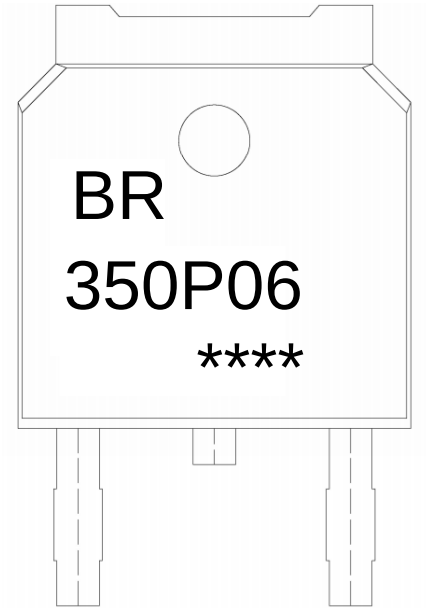


单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max.		Min	Max
A	6.25		A	2.20	2.40
B	2.34		B	0.95	1.25
C	0.45	0.55	C	0.45	0.60
D	10.35		D	6.45	
L3	0.60	0.90			

TO-252

/ Marking Instructions



BR

350P06

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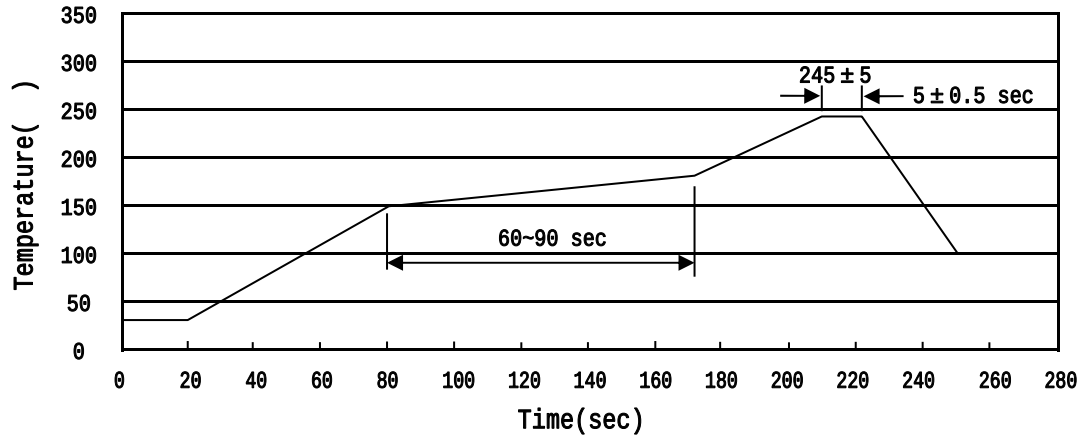
Note:

BR:	Company Code
350P06:	Product Type Code
****:	Lot No. Code, code change with Lot No

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



1		150	180		60	90sec;		Note:	
2		245±5				5±0.5sec;		1.Preheating:150~180	, Time:60~90sec.
3				2	10	/sec.		2.Peak Temp.:245±5	, Duration:5±0.5sec.
								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 封装形式	Units 包装数量					Dimension 包装尺寸 (unit：mm³)		
	只 卷盘	卷盘 盒	只 盒	盒 箱	只 箱		盒	箱
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit：mm³)		
	只 套管	套管 盒	只 盒	盒 箱	只 箱	套管	盒	箱
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices