

BRCS250N10SYMQ

Rev.A Mar.-2025

/ Descriptions

PDFN5 6A N

Dual N-CHANNEL MOSFET in a PDFN5×6A Plastic Package.

/ Features

V_{DS} (V) =100V I_D =30A ($V_{GS} = \pm 20V$)

$R_{DS(ON)}$ @10V 25mR(Typ.20mR)

$R_{DS(ON)}$ @4.5V 35mR(Typ.25mR)

AEC-Q101

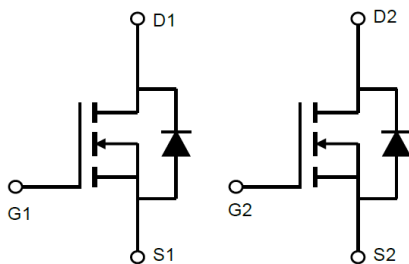
Qualified to AEC-Q101 Standards for High Reliability; HF Product.

/ Applications

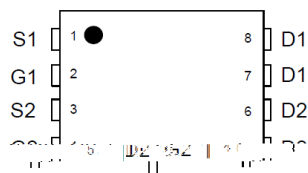
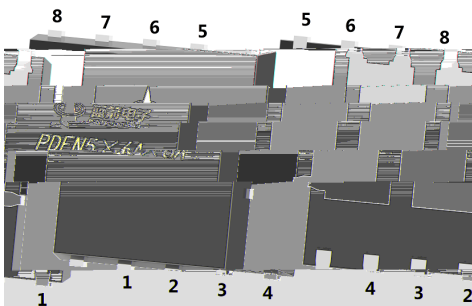
DC/DC

DC/DC Converter, Ideal for high-frequency switching and synchronous rectification, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	30	A
Drain Current - Pulsed		I_{DM}	113	A
Gate-Source Voltage		V_{GS}	± 20	V
Avalanche Current		I_{AS}	7	A
Single Pulsed Avalanche Energy		E_{AS}	24.5	mJ
Power Dissipation		$P_D(T_c=25^\circ\text{C})$	45	W
Storage Temperature Range		T_{stg}	-55 ~ 150	
Thermal Resistance-Junction to Ambient	t = 10s	R_{JA}	40	/W
	Steady-State		63	
Thermal Resistance-Junction to Case	Steady-State	R_{JC}	2.78	

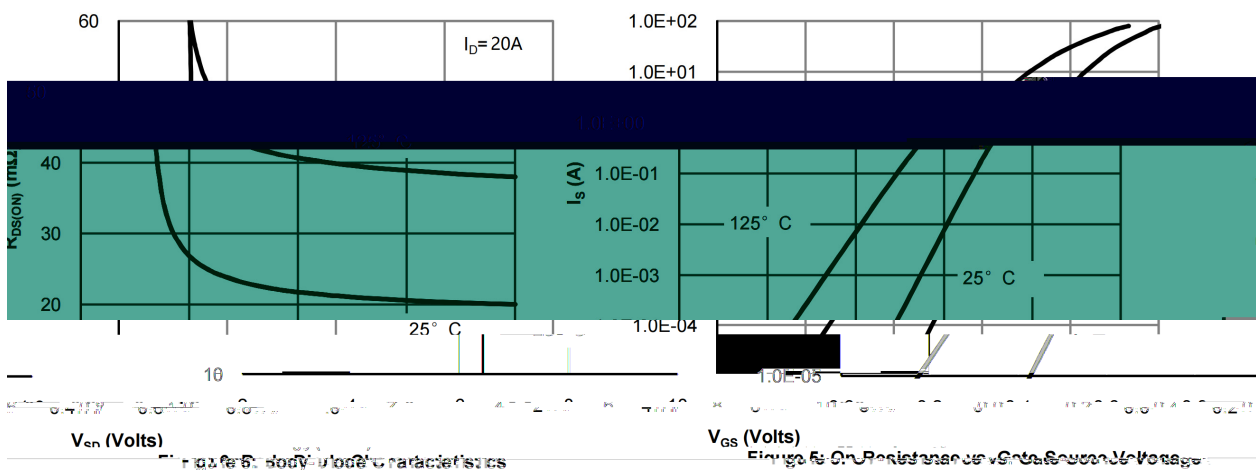
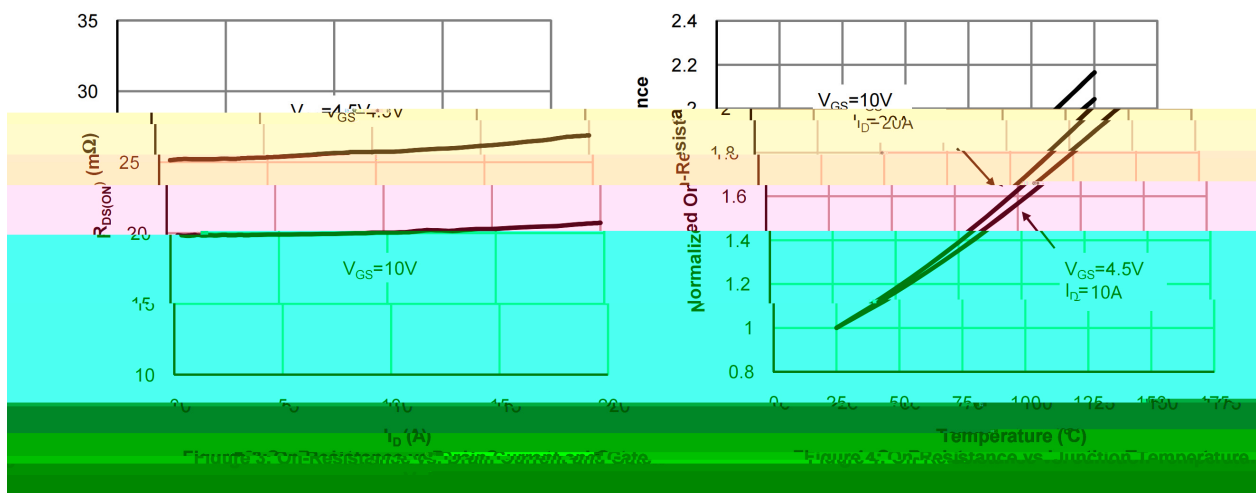
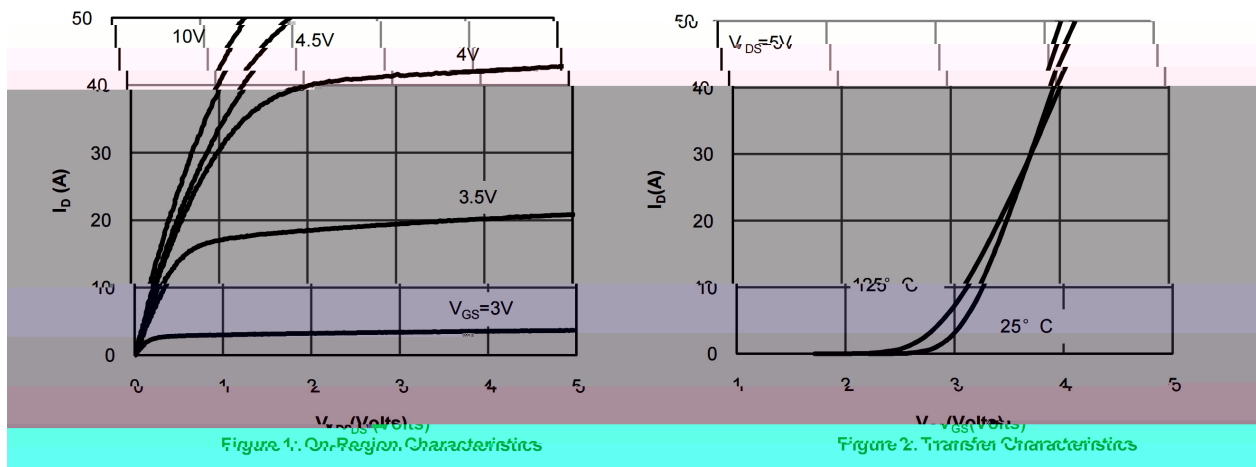
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	100	109		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V$ $V_{GS}=0V$			1	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20A$		20	25	m
		$V_{GS}=4.5V$ $I_D=10A$		25	35	m
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		820		pF
Output Capacitance	C_{oss}			475		
Reverse Transfer Capacitance	C_{rss}			35		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		1.9		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=50V$ $I_D=9A$		17		nC
Total Gate Charge	$Q_{g(4.5V)}$			9		
Gate Source Charge	Q_{gs}			3		
Gate Drain Charge	Q_{gd}			3.5		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V V _{DS} =50V R _L =5.5 R _{GEN} =3.0		5		ns
Turn-On Rise Time	t _r			3.2		
Turn-Off Delay Time	t _{d(off)}			21		
Turn-Off Fall Time	t _f			3		

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

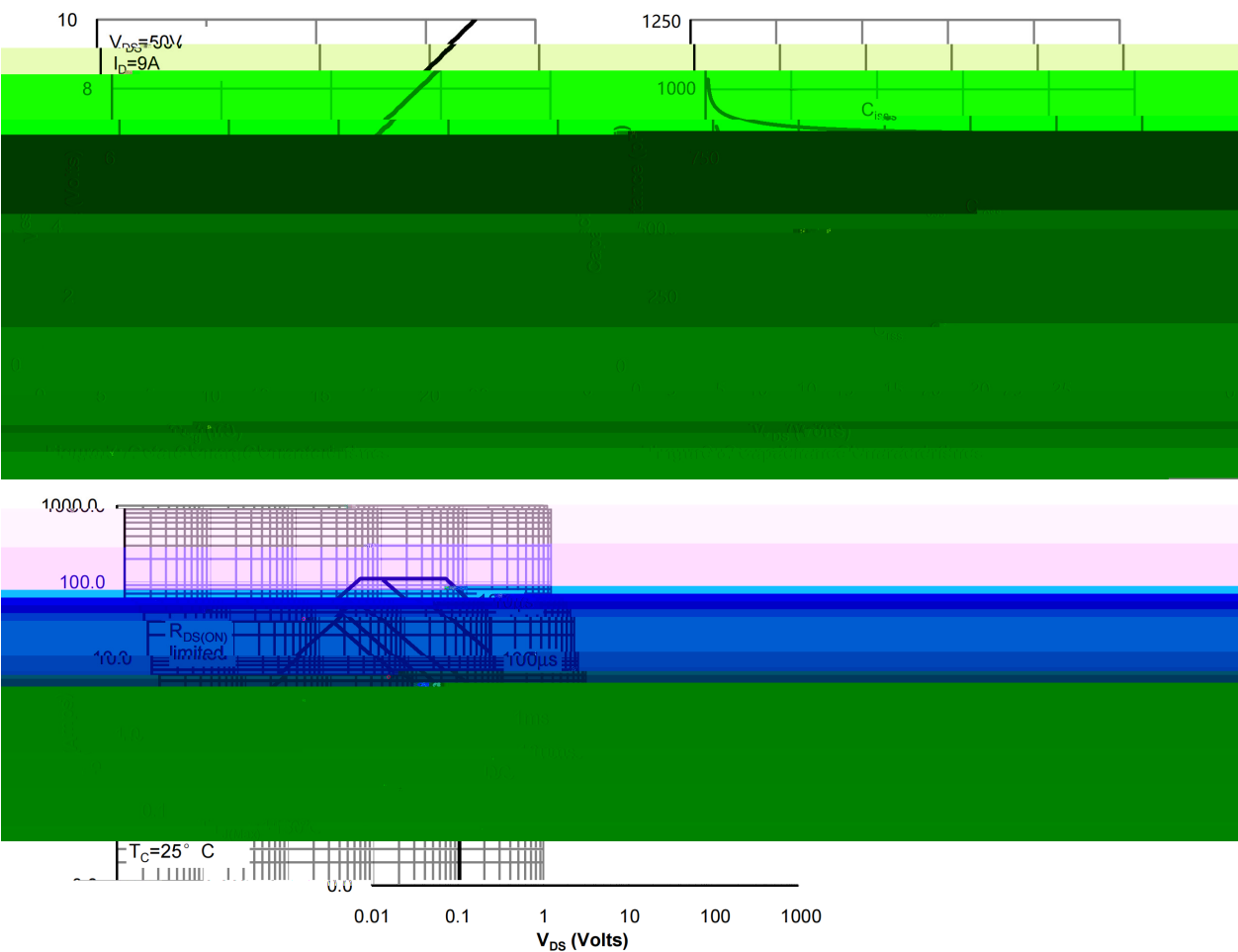


Figure 9: Maximum Forward Biased Safe

Operating Area

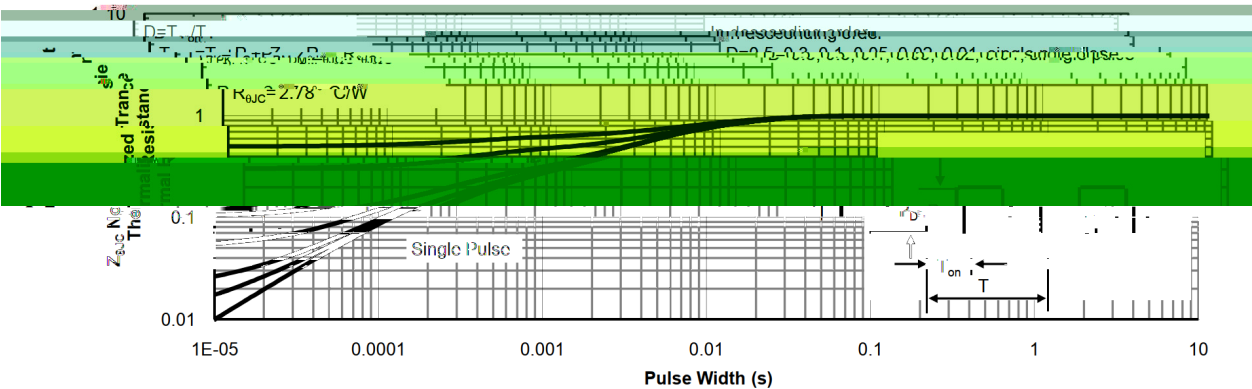
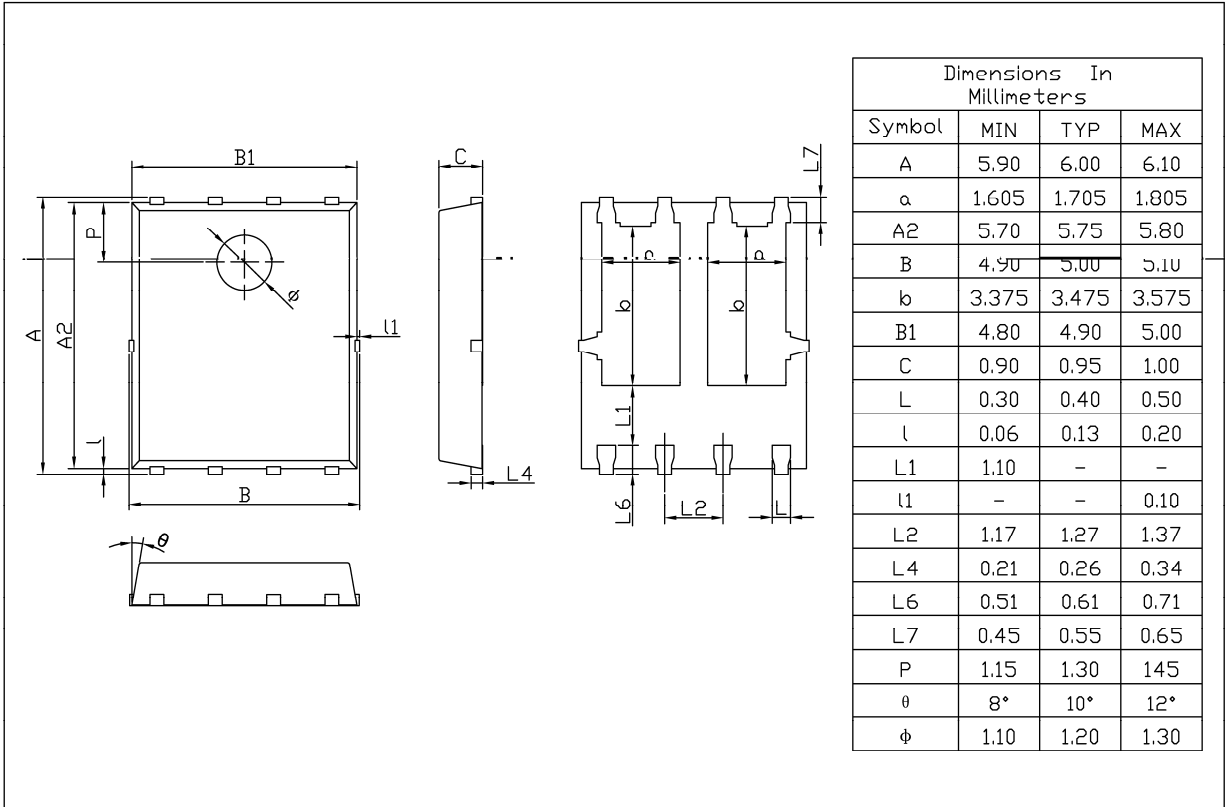


Figure 10: Normalized Maximum Transient Thermal Impedance

I Package Dimensions

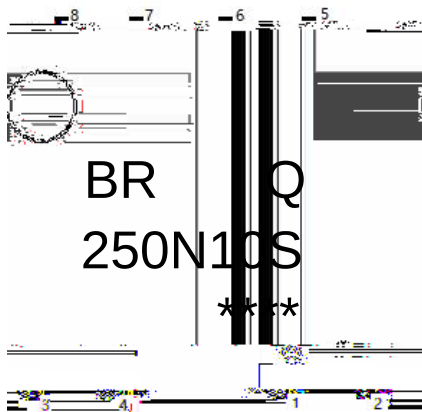
PDFN5 X6A

Unit:mm



Rev.01 202209

/ Marking Instructions

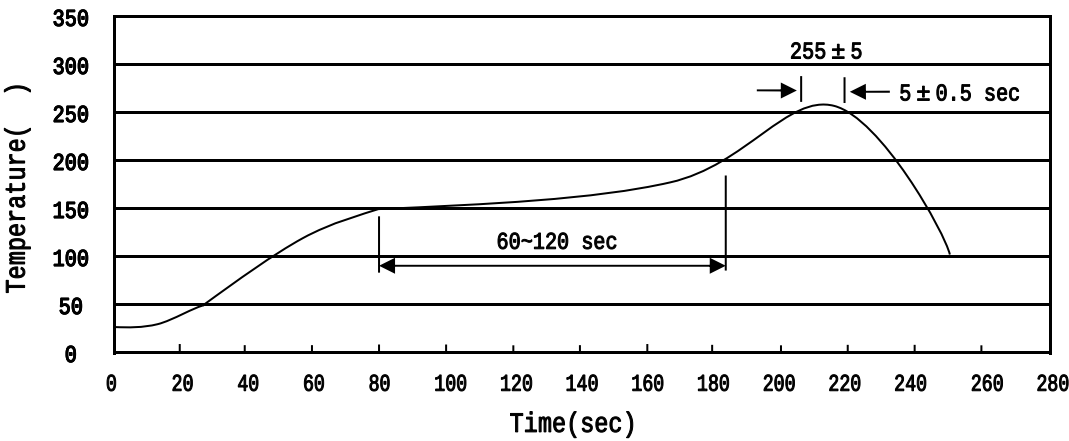


250N10S

Note

BR	Company Code
Q:	Automobile halogen-free product Code
250N10S	Product Type Code
****:	Lot No. Code, code change with Lot No

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



Note:

- 1

150 200

60 120sec;

1.Preheating:150~200 , Time:60~120sec.
- 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

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
PDFN5×6A	5,000	2	10,000	6	60,000	13"×12	360×360×50	380×335×366

/ Notices