

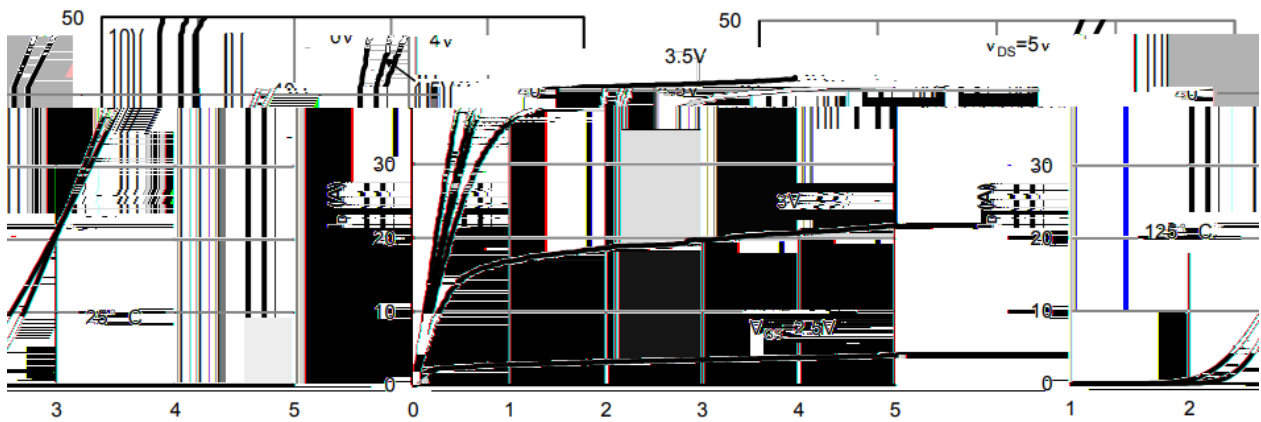
/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

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}	55	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy		E_{AS}	199	mJ
Avalanche Current		I_{AS}	12.9	A
Power Dissipation		$P_D(T_C=25^\circ\text{C})$	15.5	W
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	
Junction-to-Ambient	$t \leq 10$	$R_{\theta JA}$	30	/W
Junction-to-Ambient	Steady-State		60	
Junction-to-Case	Steady-State	$R_{\theta JC}$	8	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.0	1.8	3.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20A$		11	13	m Ω
		$V_{GS}=4.5V$ $I_D=10A$		16	20	m Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		666		pF
Output Capacitance	C_{oss}			26		
Reverse Transfer Capacitance	C_{rss}			63		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		1.7		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=8A$		13.6		nC
Total Gate Charge	$Q_{g(4.5V)}$			6.8		
Gate Source Charge	Q_{gs}			1.6		
Gate Drain Charge	Q_{gd}			3.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=1.87\Omega$ $R_{GEN}=4.5\Omega$		5		ns
Turn-On Rise Time	t_r			3.5		
Turn-Off Delay Time	$t_{d(off)}$			22		
Turn-Off Fall Time	t_f			4.5		

/ Electrical Characteristic Curve



V_{GS} (Volts)
Transfer Characteristics

V_{DS} (Volts)
Figure 1: On-Region Characteristics

Figure 2: Transfer Characteristics

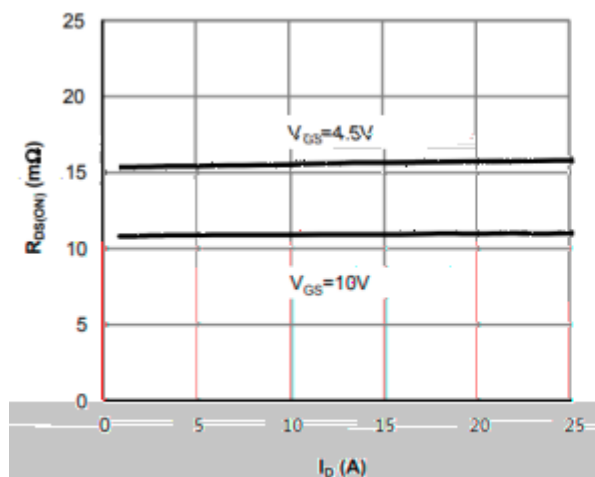


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

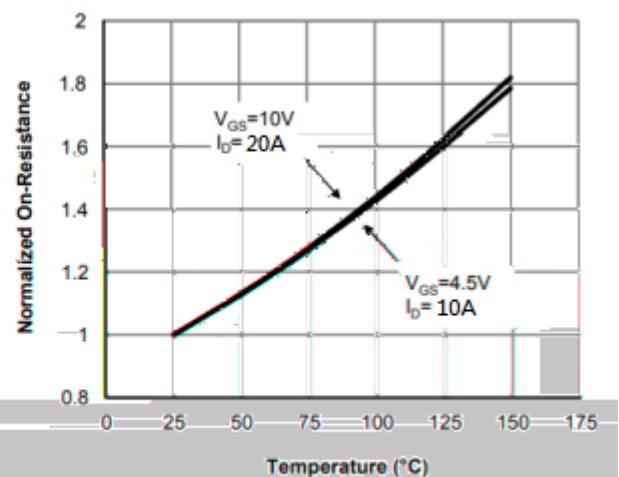


Figure 4: On-Resistance vs. Junction Temperature

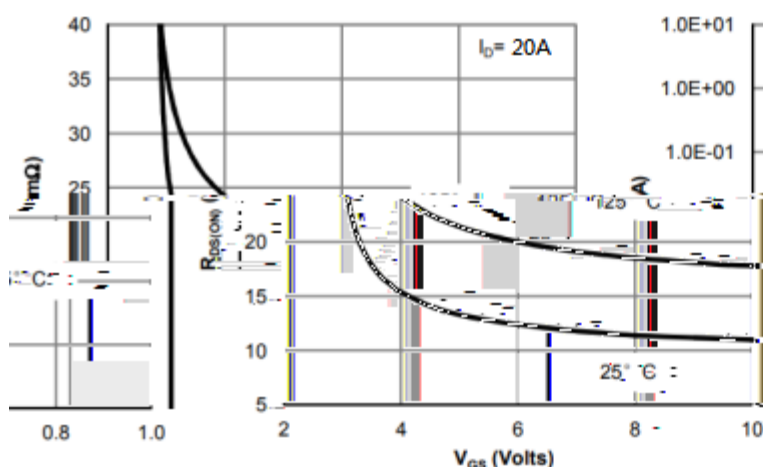


Figure 5: On-Resistance vs. Gate-Source Voltage

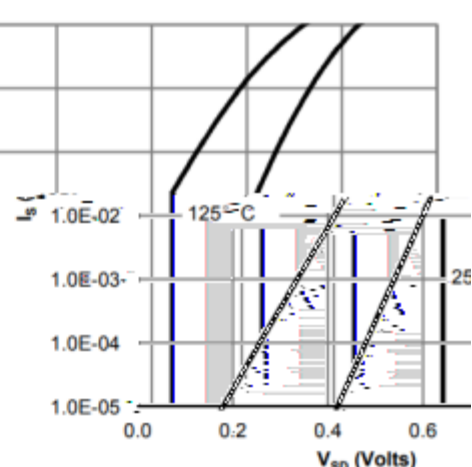


Figure 6: Body Diode Current

/ Electrical Characteristic Curve

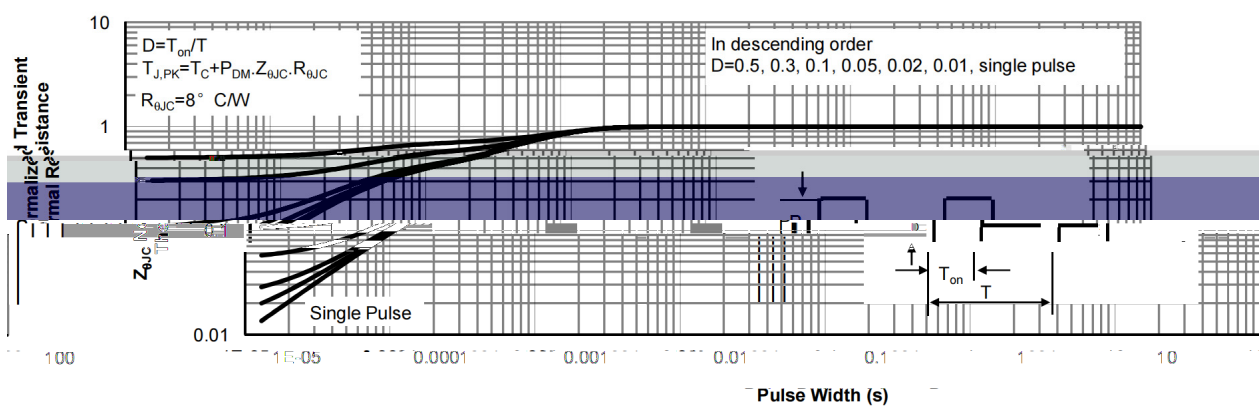
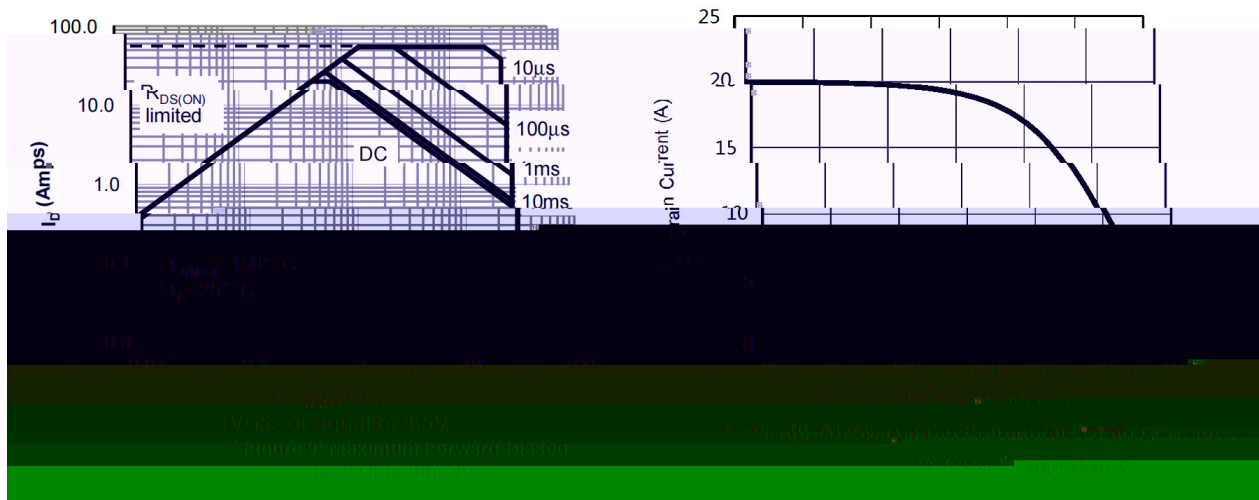
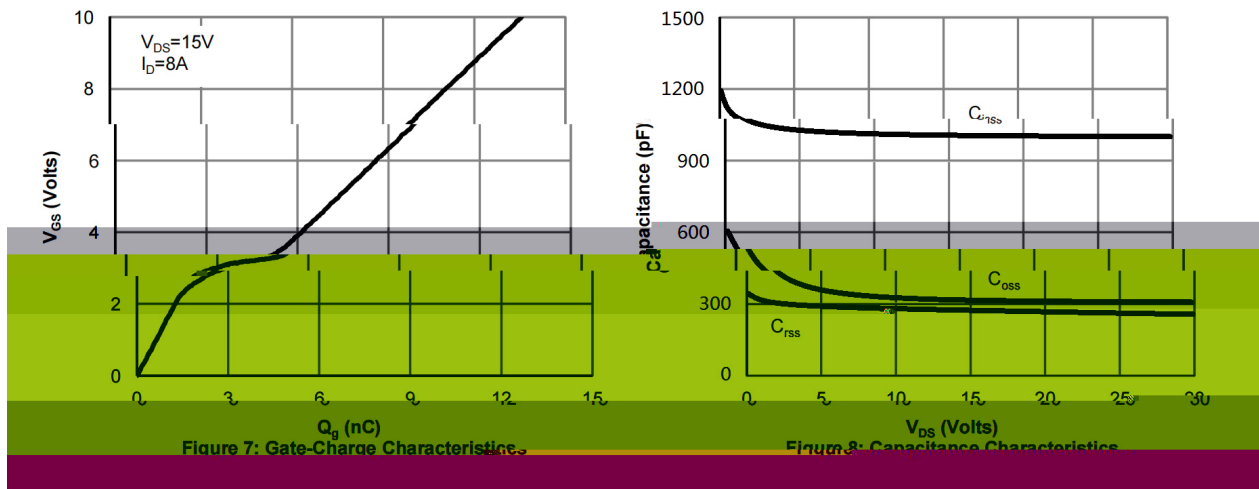
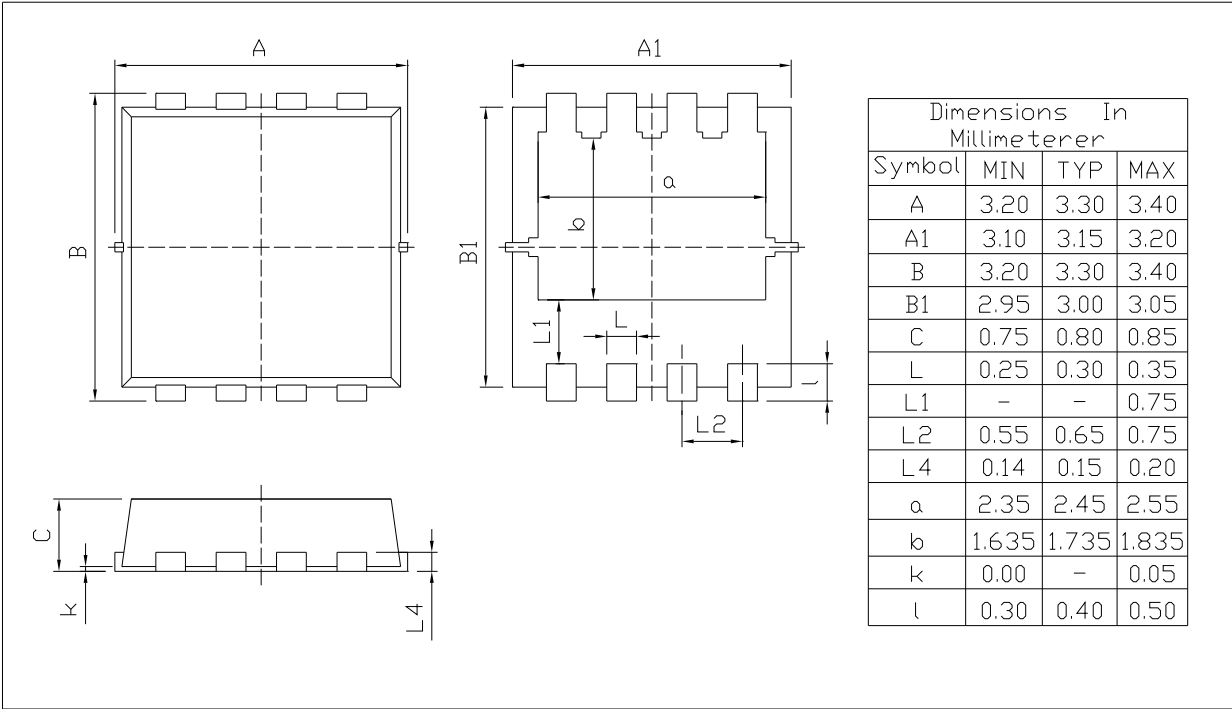


Figure 11: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

PDFN3X3A-8L

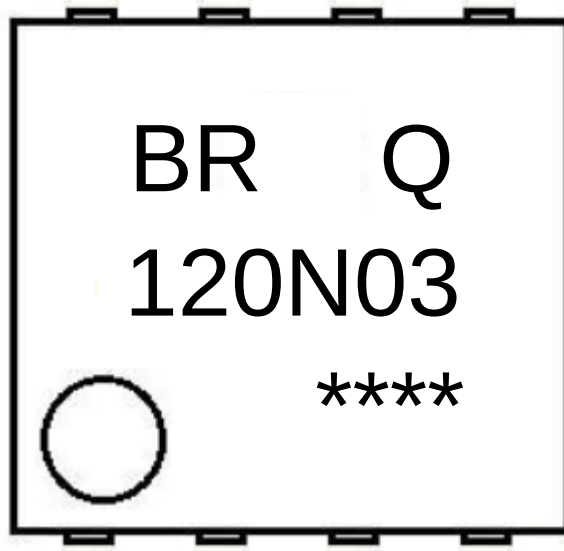
Unit:mm



Rev.00 202011



/ Marking Instructions



BR

Q

120N03

Note:

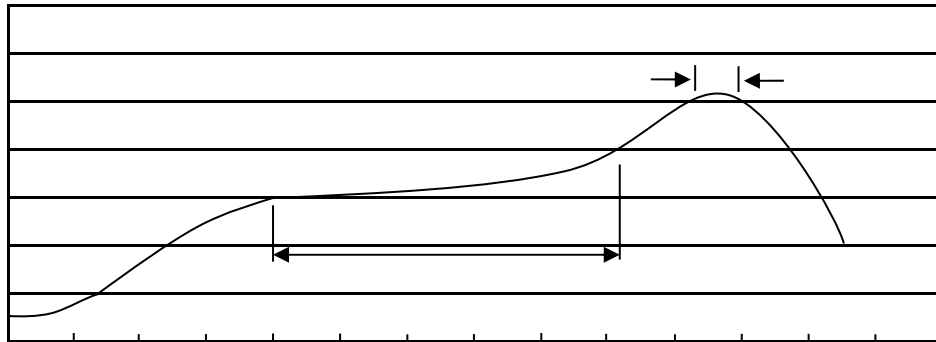
BR: Company Code

Q: Automobile halogen-free product Code

120N03: 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
PDFN3×3A-8L	5,000	2	10,000	6	60,000	13 ×12	360×360×50	380×335×366

/ Notices