

General Description

The MY34N20NE5 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

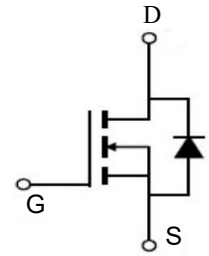
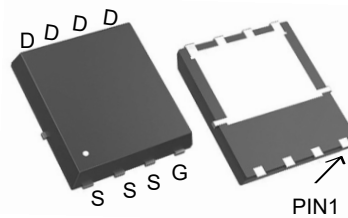


Features

V_{DSS}	200	V
I_D	34	A
$P_D(T_C=25^{\circ}C)$	125	W
$R_{DS(ON)}(at V_{GS}=4.5V)$	< 72	m Ω

Application

- Battery protection
- Load switch
- Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY34N20NE5	PDFN5*6-8L	34N20	5000

Absolute Maximum Ratings ($T_C=25^{\circ}C$ unless otherwise noted)

Symbol	Parameter		Rating	Unit
Common Ratings (Tc=25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		200	V
V _{GSS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		-55 to 175	°C
T _{STG}	Storage Temperature Range		-55 to 175	°C
I _S	Source Current-Continuous(Body Diode)	Tc=25°C	34	A
Mounted on Large Heat Sink				
I _{DM}	Pulsed Drain Current *	Tc=25°C	120	A
I _D	Continuous Drain Current	Tc=25°C	30	A
		Tc=100°C	20	A
P _D	Maximum Power Dissipation	Tc=25°C	125	w
		Tc=100°C	62.5	w
R _{θJC}	Thermal Resistance, Junction-to-Case		1.2	°C/w
R _{θJA}	Thermal Resistance, Junction-to-Ambient **		50	°C/w
E _{AS}	Single Pulsed-Avalanche Energy ***	L=0.5mH	161.8	mJ

Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Test Conditions		MY34N20NE5			Unit
				Min	Typ.	Max	
Static Characteristics							
BV _{DSS}	Drain Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA		200			V
I _{DSS}	Drain to Source Leakage Current	V _{DS} =200V, V _{GS} =0V				1	μA
			T _J =55°C			50	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA		3.0	3.7	5.0	V
I _{GSS}	Gate Source Leakage Current	V _{GS} =±20V, V _{DS} =0V				±100	nA
R _{DS(ON)*}	Drain Source On State Resistance	V _{GS} =10V, I _{DS} =45A			57	72	mΩ
Diode Characteristics							
V _{SD} *	Diode Forward Voltage	I _{SD} =45A, V _{GS} =0V			0.84	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =45A, dI _{SD} /dt=100A/μs			97.7		ns
Q _{rr}	Reverse Recovery Charge				424.7		nC

Electrical Characteristics (Cont.) ($T_c = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	MY34N20NE5			Unit
			Min	Typ.	Max	
Dynamic Characteristics						
R _G	Gate Resistance	V _{GS} =0V,V _{DS} =0V , F=1MHz		3.5		n
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =25V, Frequency=1.0MHz		2570		pF
C _{oss}	Output Capacitance			199		
C _{rss}	Reverse Transfer Capacitance			97		
t _{d(ON)}	Turn on Delay Time	V _{DD} =100V,R _G =40, I _{DS} =45A,V _{GS} =10		15.18		ns
T _r	Turn on Rise Time			39.7		
t _{d(OFF)}	Turn off Delay Time			33.4		
T _f	Turn off Fall Time			35.3		
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =100V, V _{GS} =10V, I _D =30A		53		nC
Q _{gs}	Gate Source Charge			15		
Q _{gd}	Gate Drain Charge			19		

^{a1}: Repetitive rating; pulse width limited by maximum junction temperature

Typical Characteristics

Figure 1: Power Dissipation

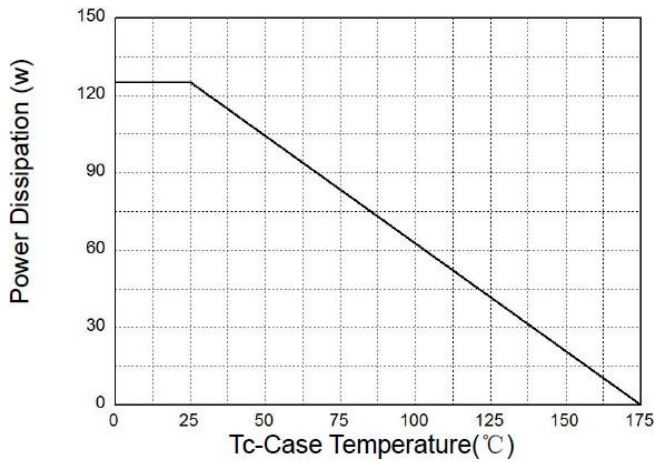


Figure 2: Drain Current

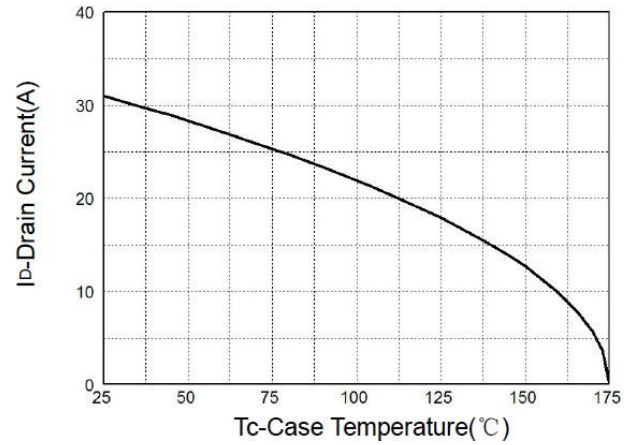


Figure 3: Safe Operation Area

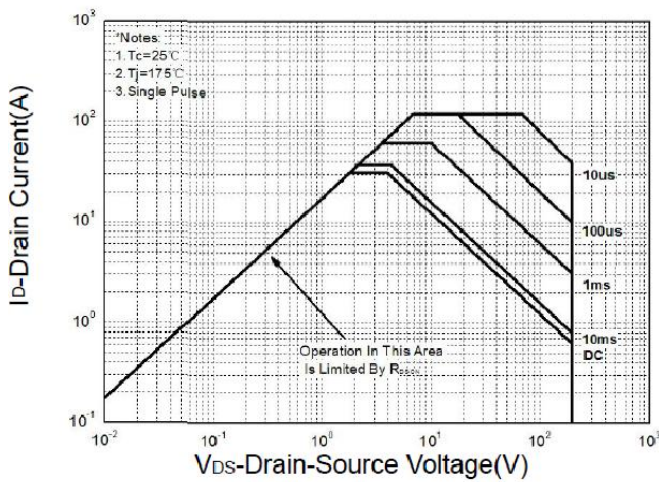


Figure 4: Thermal Transient Impedance

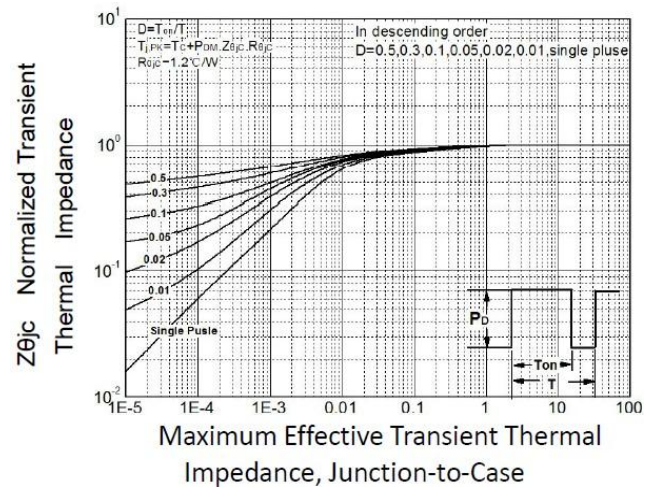


Figure 5: Output Characteristics

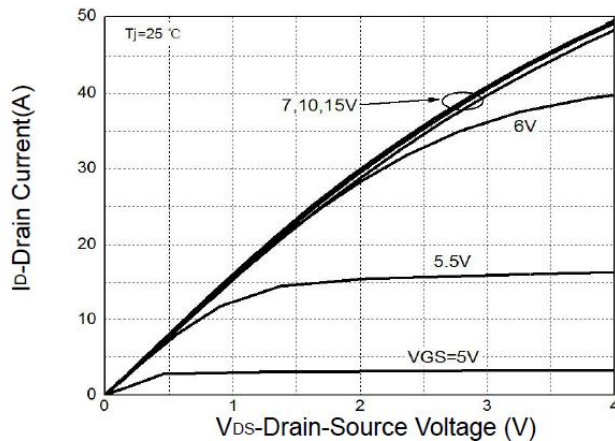


Figure 6: Drain-Source On Resistance

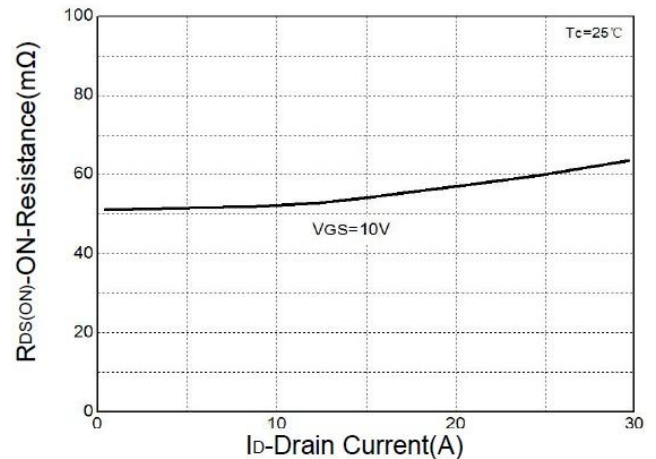


Figure 7: On-Resistance vs. Temperature

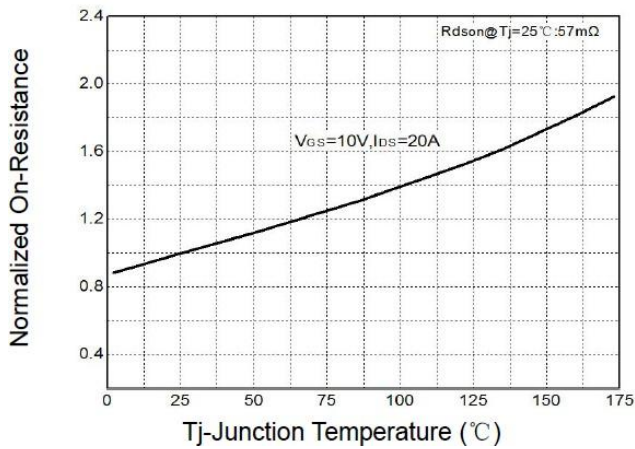


Figure 8: Source-Drain Diode Forward

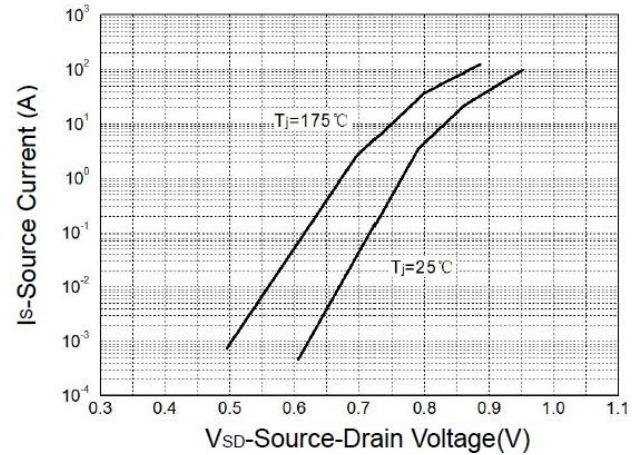


Figure 9: Capacitance Characteristics

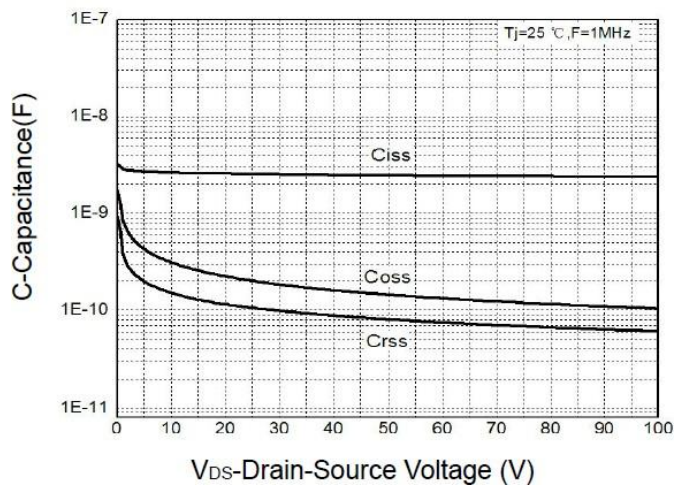
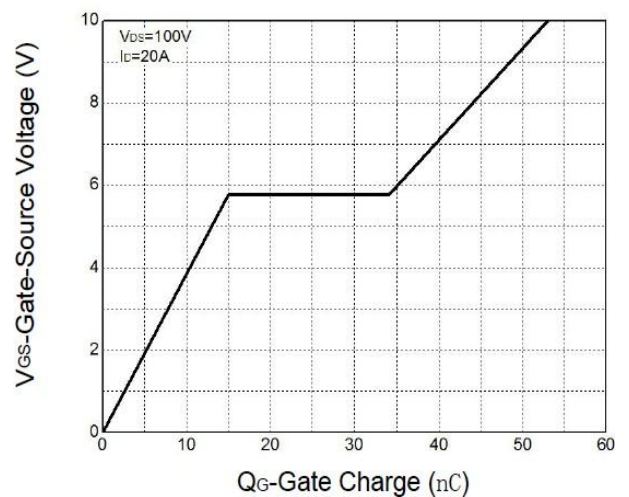
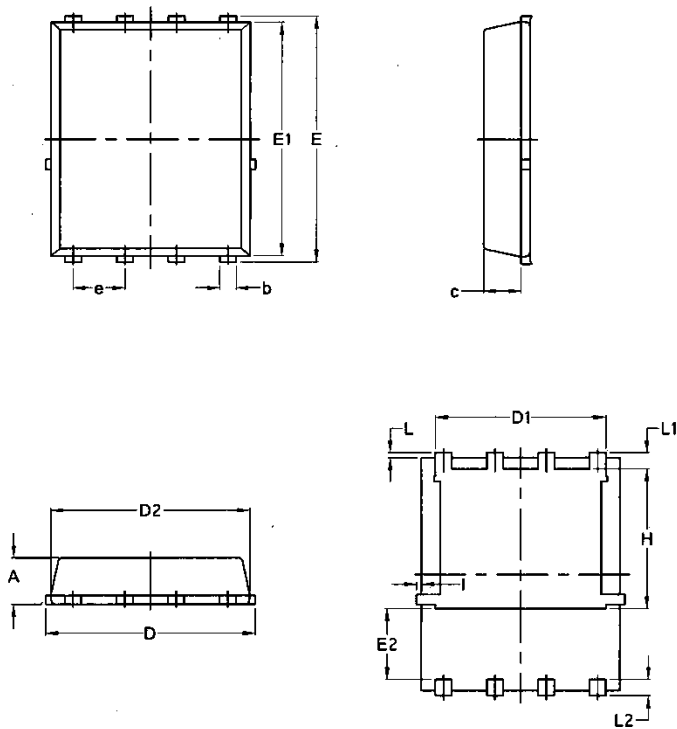


Figure 10: Gate Charge Characteristics



Package Mechanical Data-DFN5*6-8L-JQ Single



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070