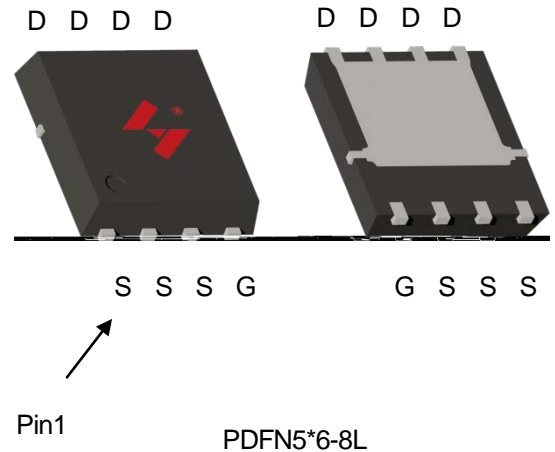


## Single N-Channel Enhancement Mode MOSFET

### Feature

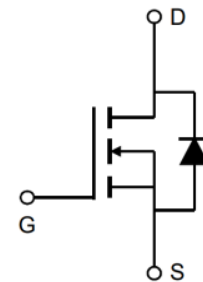
- 100V/65A  
 $R_{DS(ON)} = 6.9\text{ m}\Omega$  (typ.) @  $V_{GS} = 10\text{V}$   
 $R_{DS(ON)} = 9.4\text{ m}\Omega$  (typ.) @  $V_{GS} = 4.5\text{V}$
- 100% Avalanche Tested
- Reliable and Rugged
- Halogen-Free Devices Available (RoHS Compliant)

### Pin Description




### Applications

- High Frequency Point-of-Load Synchronous Buck Converter
- Power Tool Application
- Networking DC-DC Power System



Single N-Channel MOSFET

### Ordering and Marking Information

 <p>C2 G080N10 XYMXXXXXX</p>	<p>Package Code C2: PDFN5*6-8L</p> <p>Date Code XYMXXXXXX</p>
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Note: HUAYI lead-free products contain molding compounds/die attach materials and 100% matte tin plate Termination finish; which are fully compliant with RoHS. HUAYI lead-free products meet or exceed the lead-free requirements of IPC/JEDEC J-STD-020 for MSL classification at lead-free peak reflow temperature. HUAYI defines "Green" to mean lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500ppm by weight).

HUAYI reserves the right to make changes, corrections, enhancements, modifications, and improvements to this product and/or to this document at any time without notice.

## Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
<b>Common Ratings</b> (Tc=25°C Unless Otherwise Noted)			
V <sub>DSS</sub>	Drain-Source Voltage	100	V
V <sub>GSS</sub>	Gate-Source Voltage	± 20	V
T <sub>J</sub>	Junction Temperature	-55 to 175	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 175	°C
I <sub>S</sub>	Source Current-Continuous(Body Diode) Tc=25°C	86	

## Electrical Characteristics (Cont.) (Tc =25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HYG080N10LS1			Unit
			Min	Typ.	Max	
<b>Dynamic Characteristics</b>						
R <sub>G</sub>	Gate Resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz	-	2.7	-	Ω
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, Frequency=1.0MHz	-	2070	-	pF
C <sub>oss</sub>	Output Capacitance		-	755	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	39	-	
t <sub>d(ON)</sub>	Turn-on Delay Time		V <sub>DD</sub> =50V, R <sub>G</sub> =2.5 , I <sub>DS</sub> =20A, V <sub>GS</sub> =10V	-	9.7	-
T <sub>r</sub>	Turn-on Rise Time	-		28.6	-	
t <sub>d(OFF)</sub>	Turn-off Delay Time	-		22.9	-	
T <sub>f</sub>	Turn-off Fall Time	-		48	-	
<b>Gate Charge Characteristics</b>						

Q<sub>g</sub> 10V Total Gate Charge

V<sub>DS</sub> =80V, V<sub>GS</sub>

## Typical Operating Characteristics

Figure 1: Power Dissipation

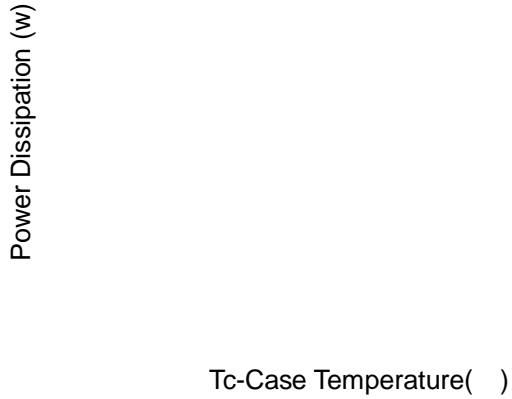


Figure 2: Drain Current

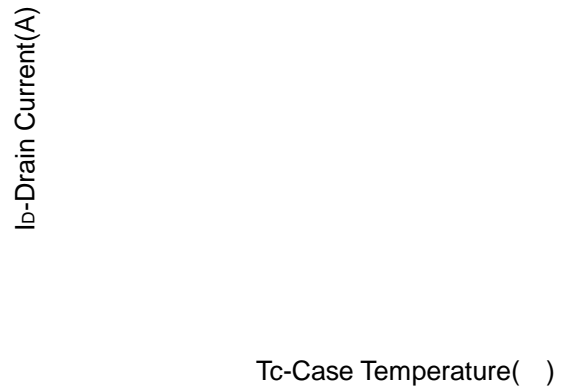


Figure 3: Safe Operation Area

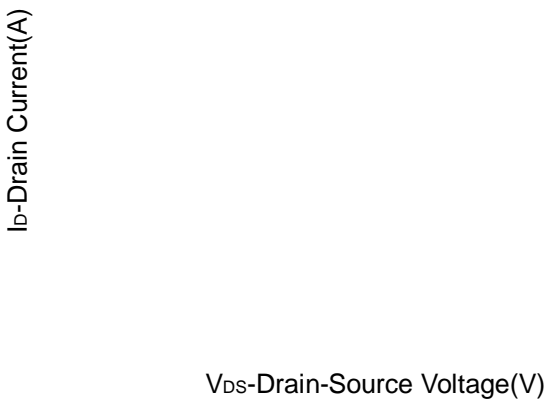


Figure 4: Thermal Transient Impedance

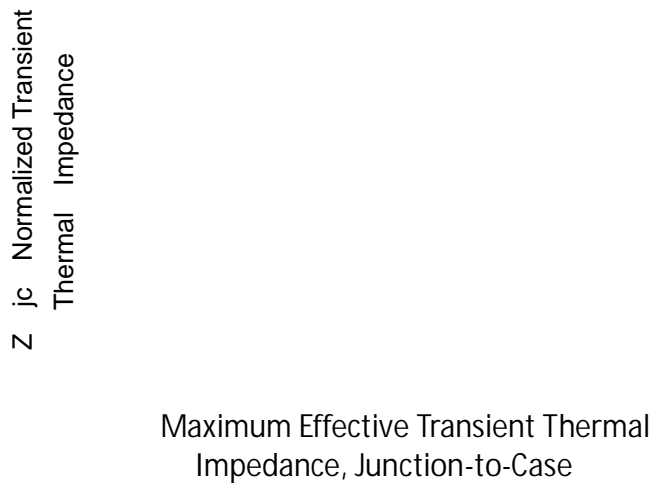
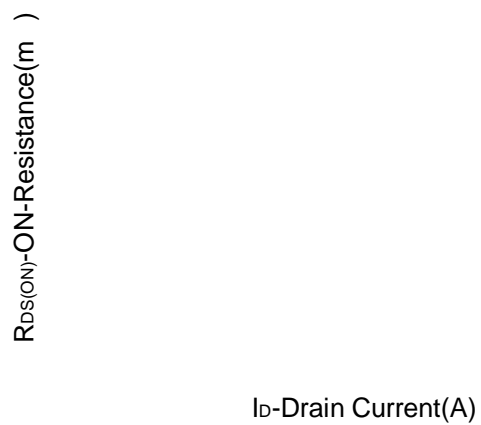


Figure 5: Output Characteristics



Figure 6: Drain-Source On Resistance



## Typical Operating Characteristics(Cont.)

Figure 7: On-Resistance vs. Temperature

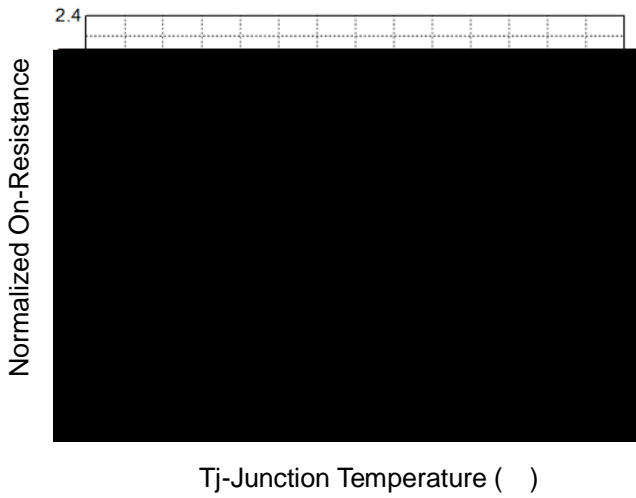


Figure 8: Source-Drain Diode Forward

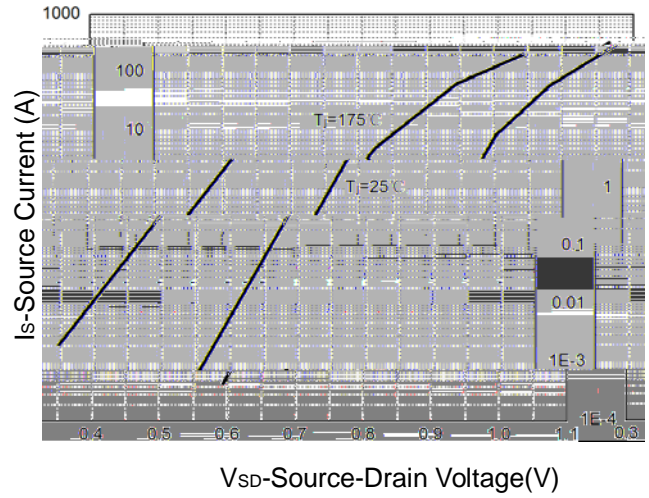


Figure 9: Capacitance Characteristics

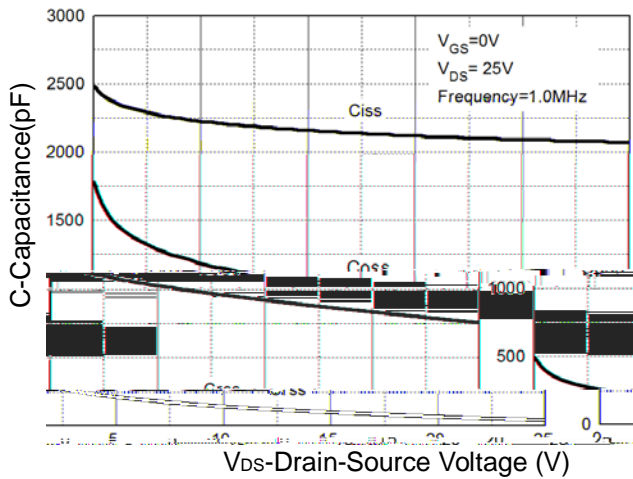
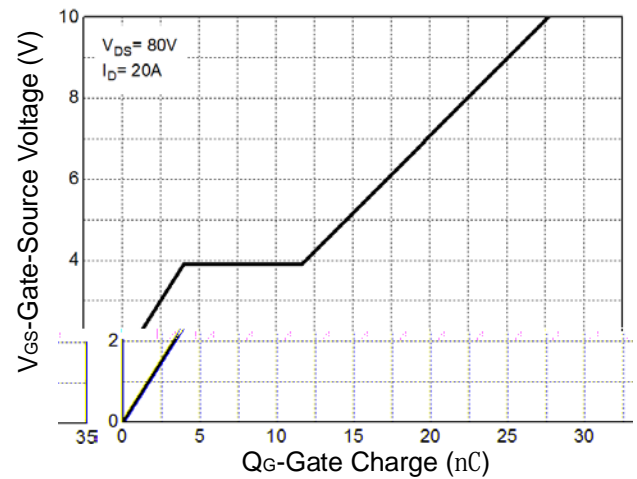
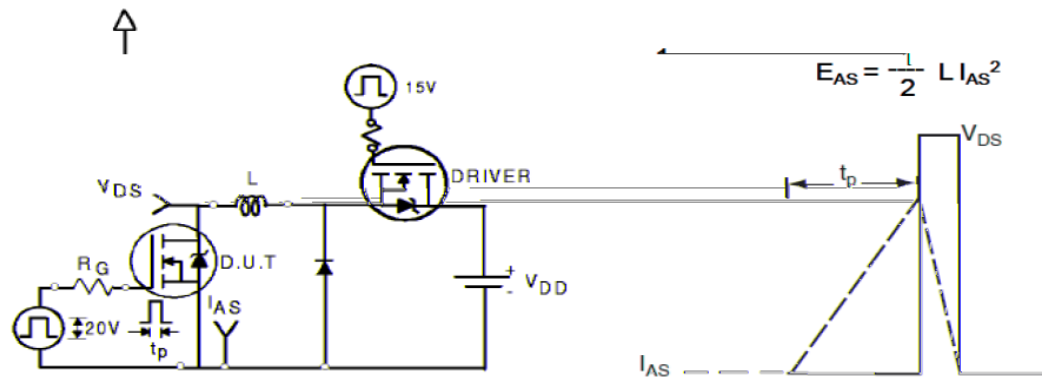


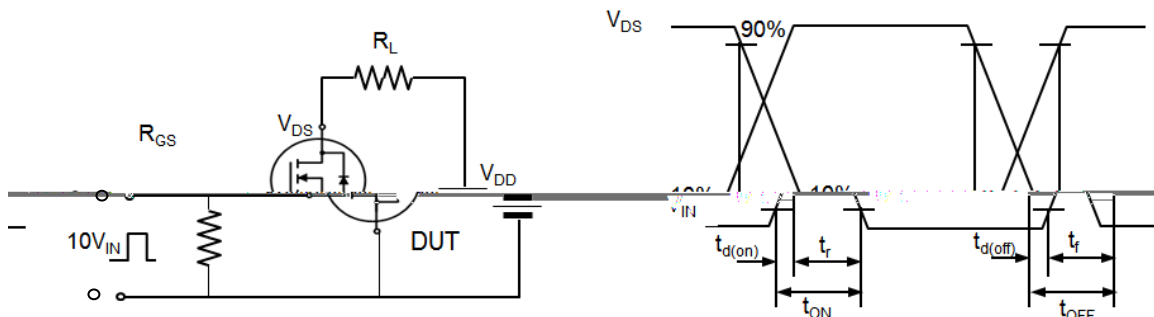
Figure 10: Gate Charge Characteristics



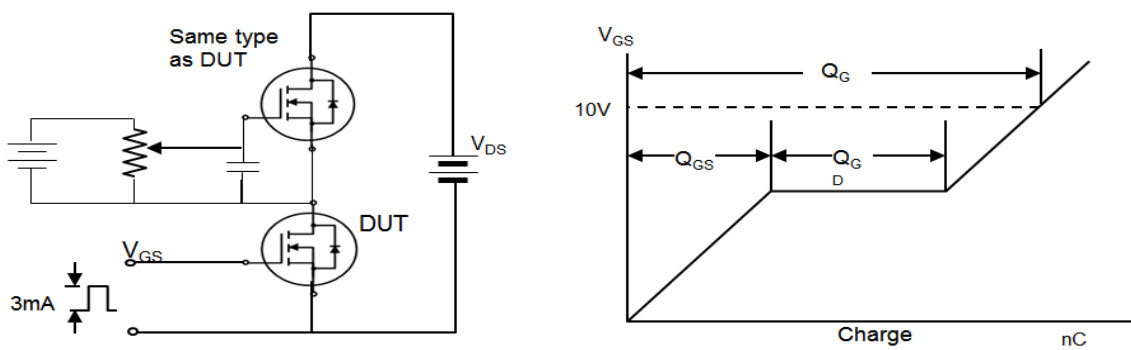
**Avalanche Test Circuit and Waveforms**



**Switching Time Test Circuit and Waveforms**



**Gate Charge Test Circuit and Waveforms**

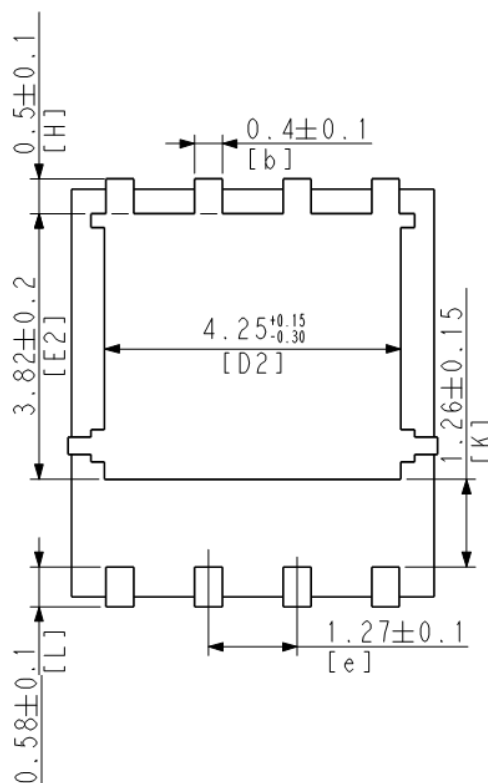
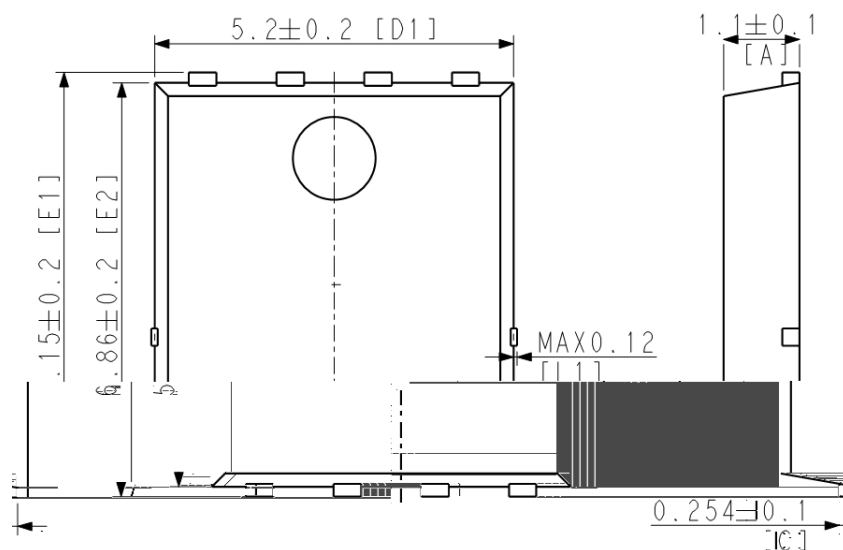


## Device Per Unit

Package Type	Unit	Quantity
PDFN5*6-8L	Reel	5000

## Package Information

PDFN 5\*6-8L



## Classification Profile

### Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
<b>Preheat &amp; Soak</b>		
Temperature min ( $T_{smin}$ )	100 °C	150 °C
Temperature max ( $T_{smax}$ )	150 °C	200 °C
Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60-120 seconds	60-120 seconds
Average ramp-up rate ( $T_{smax}$ to $T_P$ )	3 °C/second max.	3°C/second max.
Liquidous temperature ( $T_L$ )	183 °C	217 °C
Time at liquidous ( $t_L$ )	60-150 seconds	60-150 seconds
Peak package body Temperature ( $T_P$ )*	See Classification Temp in table 1	See Classification Temp in table 2

Time ( $t_P$ )\*\* within 5°C of the specified classification temperature (T



