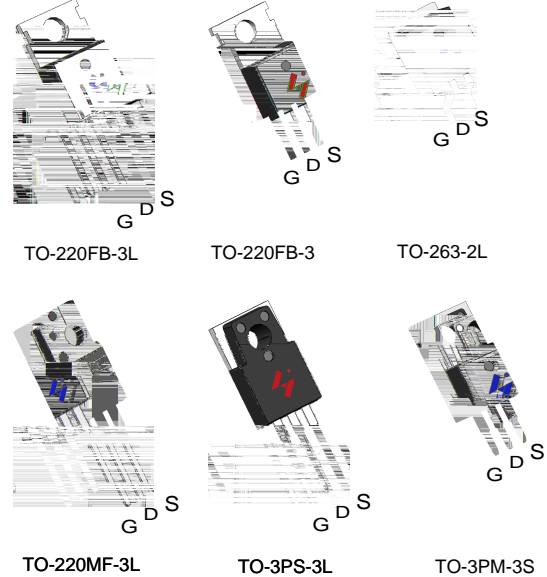


N-Channel Enhancement Mode MOSFET

Features

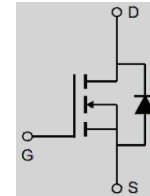
- 80V/200A
 $R_{DS(ON)} = 2.9\text{ m}\Omega$ (typ.) @ $V_{GS}=10\text{V}$
- 100% avalanche tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

Pin Description








Applications

- Switching application
- Power Management for Inverter Systems.



N-Channel MOSFET

Ordering and Marking Information

 P HY4008 YYXXJWW G	 M HY4008 YYXXJWW G	 B HY4008 YYXXJWW G	Package Code P : TO-220FB-3L M : TO-220FB-3 B: TO-263-2L PS: TO-3PS-3L PM: TO-3PM-3S
 PS HY4008 YYXXJWW G	 PM HY4008 YYXXJWW G		Date Code Assembly Material YYXX WW G : Lead Free Device

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
		790**	
		1496***	
		HY4008	
		80	
		2.9	

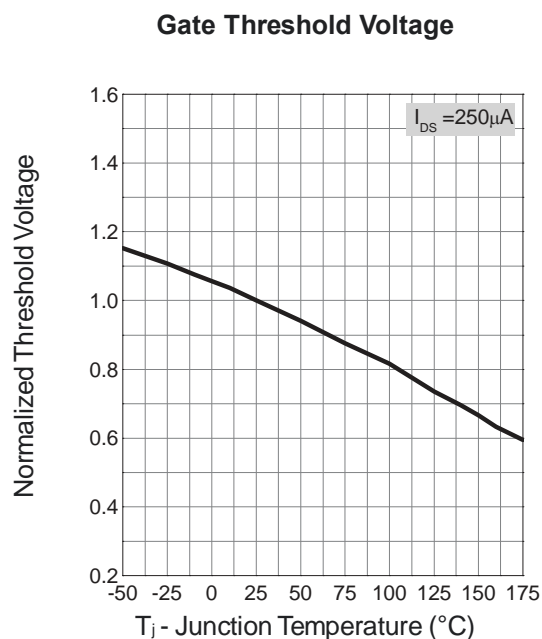
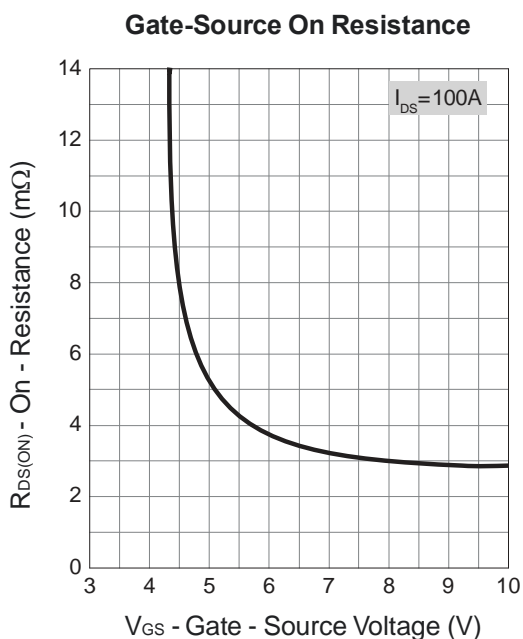
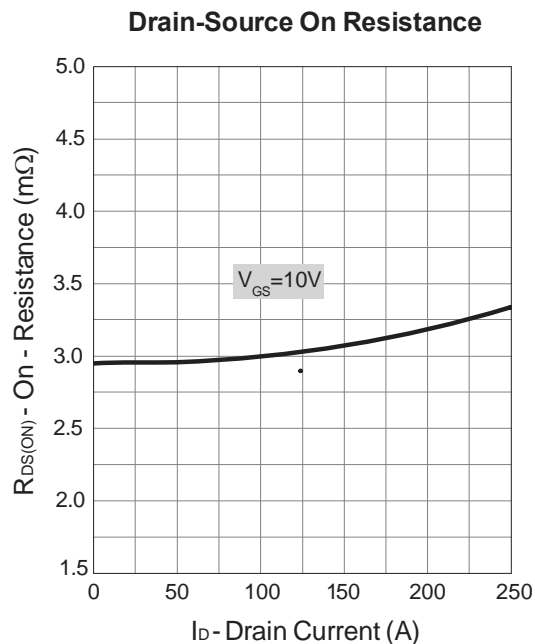
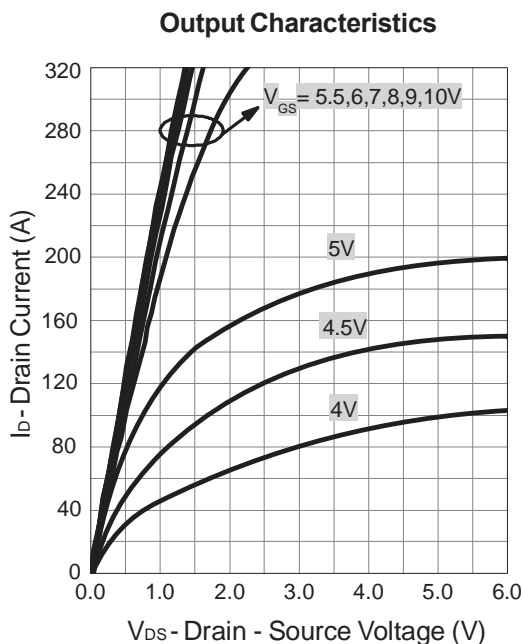
Typical Operating Characteristics

Safe Operation Area

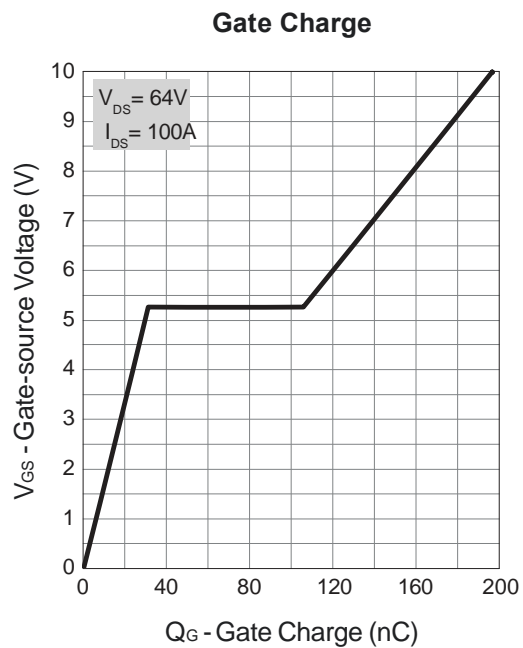
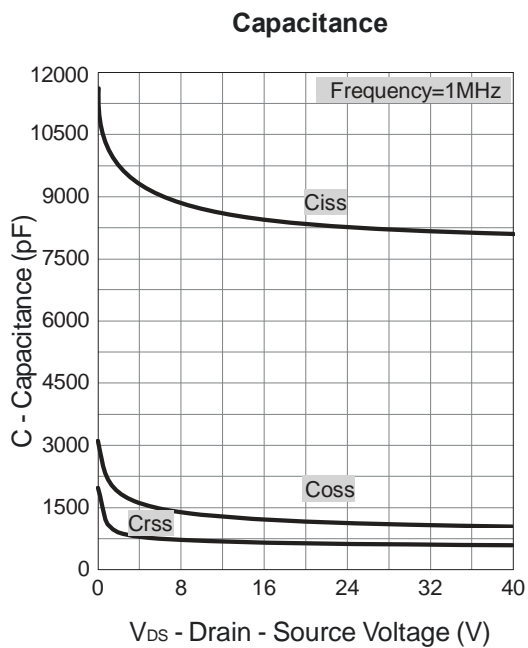
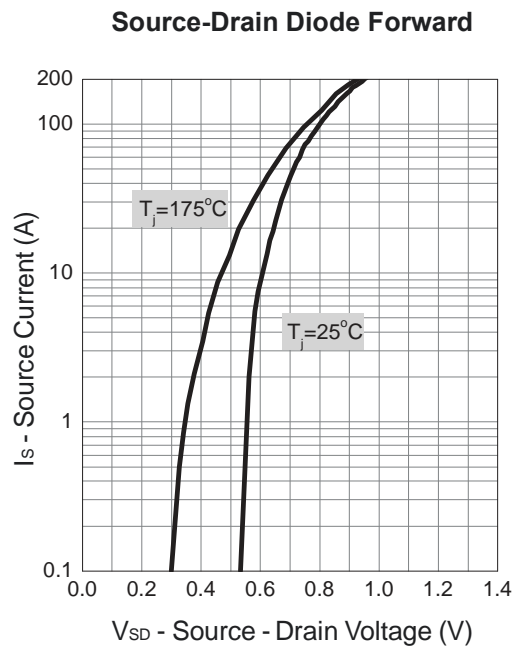
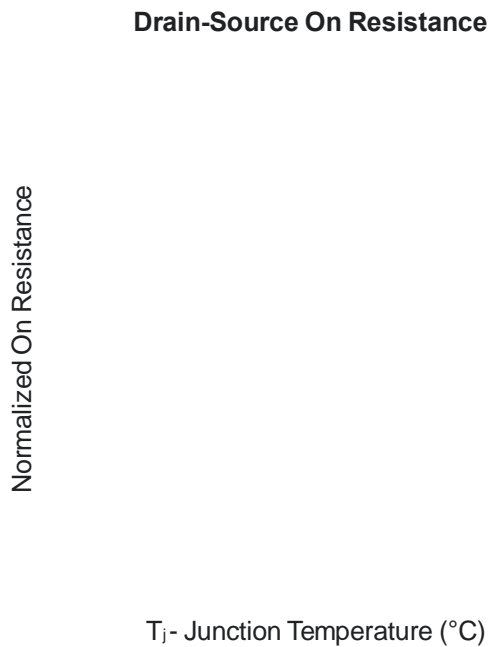
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V_{DS} - Drain - Source Voltage (V)

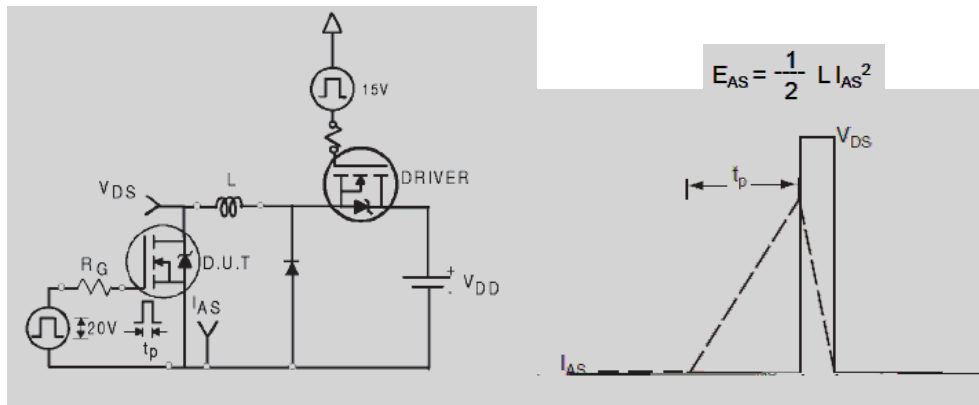
Typical Operating Characteristics (Cont.)



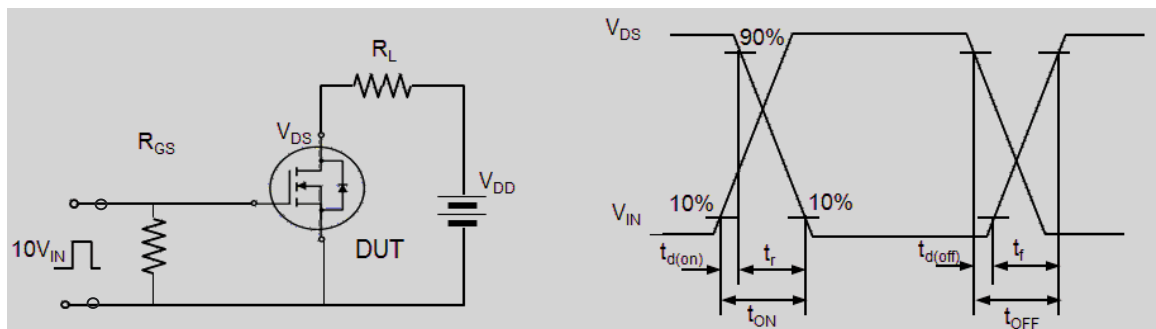
Typical Operating Characteristics (Cont.)



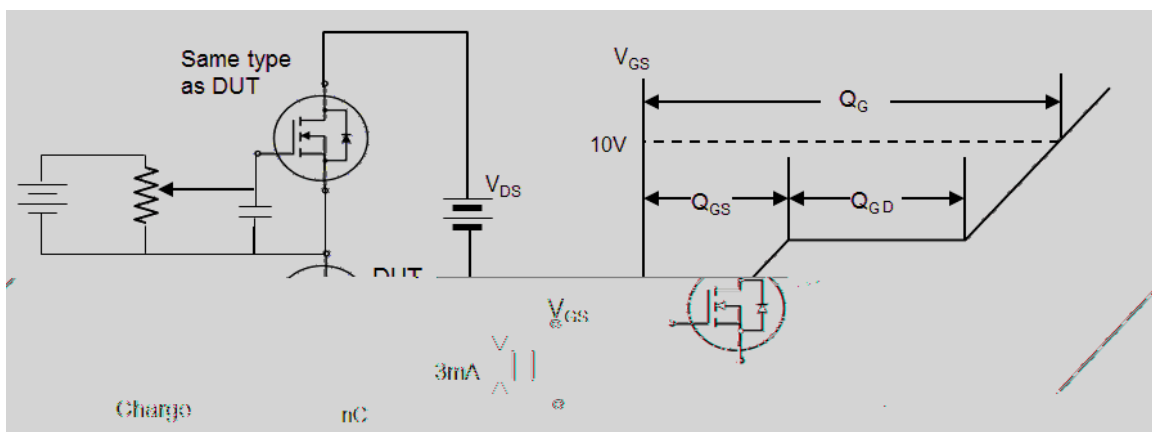
Avalanche Test Circuit



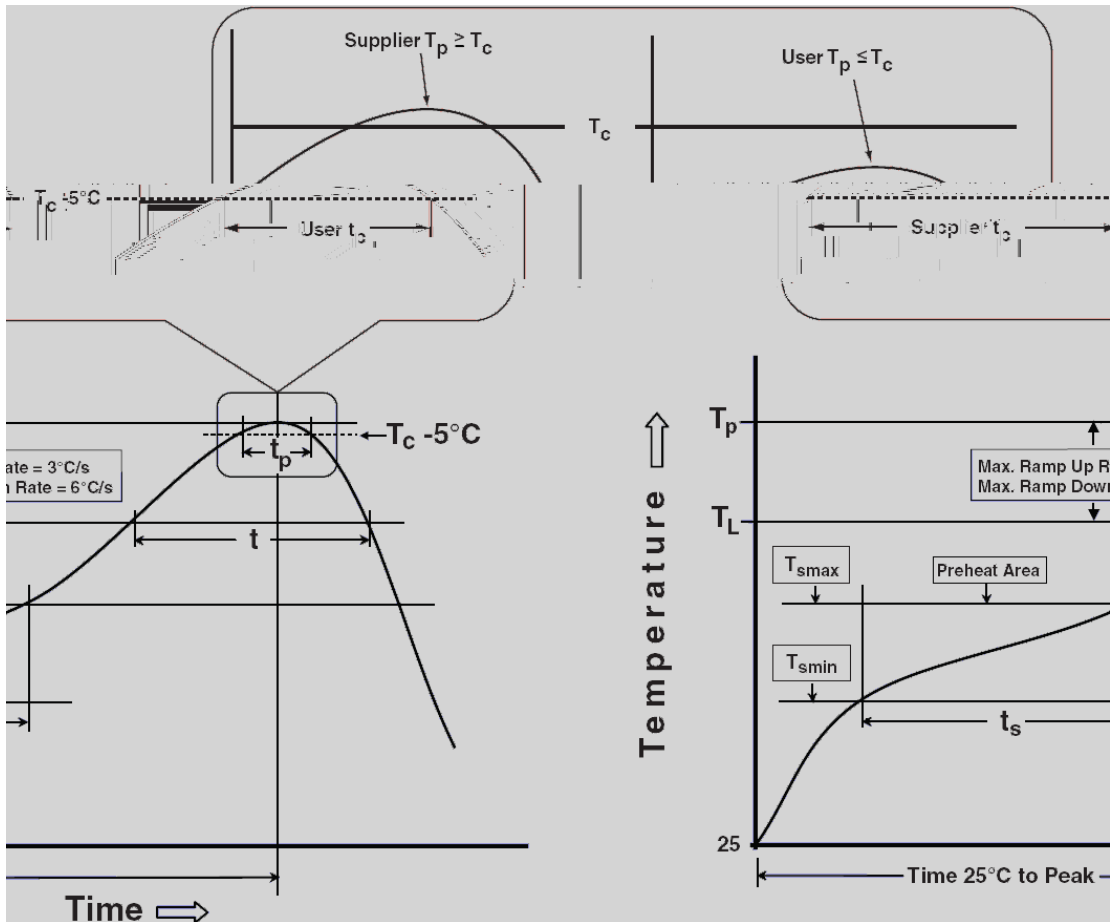
Switching Time Test Circuit



Gate Charge Test Circuit



Classification Profile



Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat & Soak		
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_c)	20** seconds	30** seconds
Average ramp-down rate (T_p to T_{smax})	6 °C/second max.	6 °C/second max.
Time 25°C to peak temperature	6 minutes max.	8 minutes max.
* Tolerance for peak profile Temperature (T_p) is defined as a supplier minimum and a user maximum.		
** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.		

Table 1. SnPb Eutectic Process – Classification Temperatures (Tc)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2. Pb-free Process – Classification Temperatures (Tc)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm – 2.5 mm	260 °C	250 °C	245 °C
≥2.5 mm	250 °C	245 °C	245 °C

Reliability Test Program

Test item	Method	Description
SOLDERABILITY	JESD-22, B102	5 Sec, 245°C
HTRB	JESD-22, A108	168 Hrs/500 Hrs/1000 Hrs, Bias @ 125°C
PCT	JESD-22, A102	96 Hrs, 100 %RH, 2atm, 121°C
TCT	JESD-22, A104	500 Cycles, -55°C~150°C