

元件動態參數分析儀(Device Dynamics Analyzer)

- ◆ Worldwide first platform to measure dynamic $R_{ds(on)}$, dynamic V_{th} , dynamic V_{sd} and dynamic reliability of GaN devices beyond JEDEC
- ◆ Up to 800V stress, 500kHz switching frequency, and 10A current
- ◆ Provide hard switching(HSW) and soft switching(ZVS)
- ◆ Available with on-wafer solution
- ◆ Built-in inline functions including pulse IV
- ◆ Available for both power and RF GaN devices.

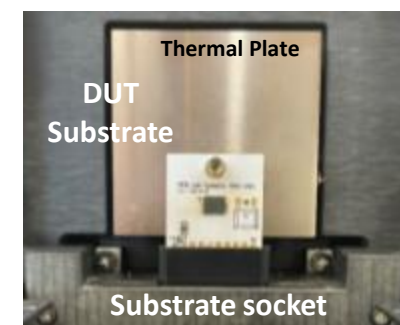
Model		DDA8010	WPDDA6505
Functionality	Thermal Control	25°C~175°C	Thermal chuck limited
	Gate Driver Spec	$\pm 20V, \Delta V = 20V$	$\pm 20V, \Delta V = 20V$
Static condition	Pulse Frequency	250Hz ~ 10000Hz	
	Pulse Width	1 μ s ~ 50 μ s	
Pulse IV	Drain Current/Voltage	30A (0 ~ 10V), 10A (10V ~ 20V)	20A (0 ~ 10V), 10A (10V ~ 20V)
	Voltage Increment	0.05V	
Dynamic Vsd	Frequency	100kHz ~ 300kHz	
	Duty	10% to 90% with 10% increment	
	Stressing Voltage	800V max	650V max
	Drain Voltage/Current	25V/10A max	25V/5A max
Dynamic $R_{ds(on)}$ /HTOL	Frequency	100kHz ~ 500kHz	100kHz ~ 300kHz
	Duty	10% to 90% with 10% increment	
	Drain Voltage	800V max	650V max
	Drain Current	10A max	5A max
Dynamic V_{th}	Frequency	100kHz ~ 300kHz	
	Duty	10% to 90% with 10% increment	
	Stressing Voltage	800V max	650V max
	Drain Voltage/Current	2V/10A max	2V/5A max
Baking	Real time monitor drain current and threshold voltage alternatively		



Total solution between probe station and WPDDA6505



DDA8010 Compatible with all package type



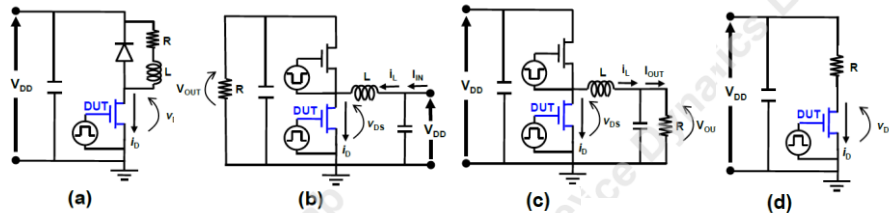
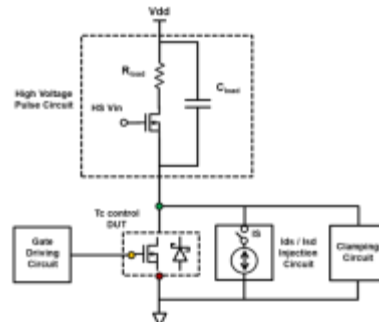
Methodology Beyond JEDEC

JEDEC STANDARD (JEP182) :

Test Method for Continuous-Switching Evaluation of Gallium Nitride Power Conversion Devices

Novel Topology :

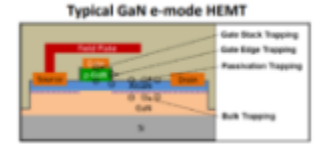
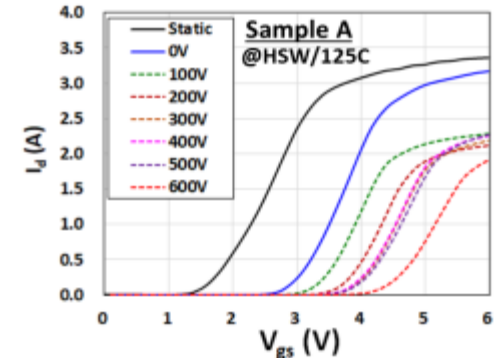
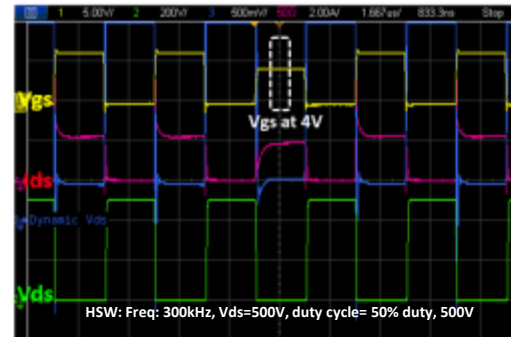
- ✓ System like characterization : Dynamic $R_{on}/V_{th}/V_{sd}$
- ✓ Provide hard switching(HSW) and soft switching(ZVS)
- ✓ High flexibility of temperature, high voltage, current, frequency and duty.
- ✓ Low system power requirement. (1 Channel 110V 20A for DDA8010)



Dynamic Characteristics : Dynamic V_{th}

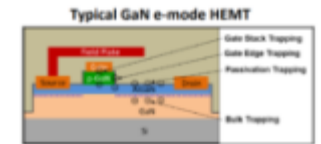
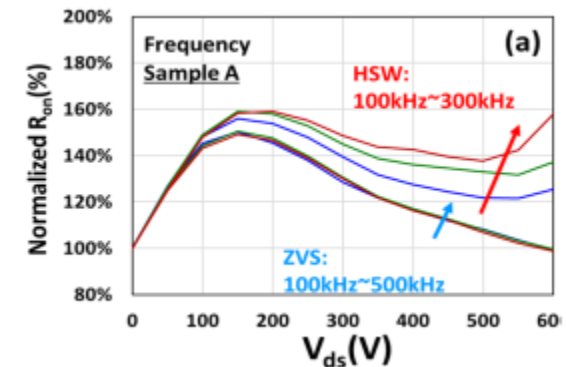
- ♦ Trapping induced V_{th} shift during switching
- ♦ Hard switching worse than Soft switching (ZVS)
- ♦ Voltage & Temperature dependent
- ♦ Impact to switching current capability

Partial V_{gs} pulse level sweep to characterize V_{th}



Dynamic Characteristics : Dynamic R_{dson}

- ♦ Trapping induced R_{dson} increasing during switching
- ♦ Hard switching worse than Soft switching (ZVS)
- ♦ Switching Voltage dependent



Method	DDL	JEDEC			
	DDA8010	(a)	(b)	(c)	(d)
Topology	Novel	RL load	Boost	Buck	R load
System-like Operation	HSW / ZVS	HSW	HSW / ZVS	ZVS	HSW
Dynamic Characterization	Dynamic $R_{on} / V_{th} / V_{sd}$	Dynamic R_{on}	Dynamic R_{on}	Dynamic R_{on}	Dynamic R_{on}
Acceleration Flexibility	Temp.	V	V	V	V
	Voltage	V	V	V	V
	Current	V	V	V	V
	Freq.	V	limited	limited	limited
	Duty	V	limited	limited	limited

