

GPI65022TO

N-channel 650V 22A GaN Power HEMT in TO220 Package

Preliminary Datasheet version: 1.2

Features

BV_{dss}	R_{dson}	I_{ds}
700 V	51 m Ω	22 A

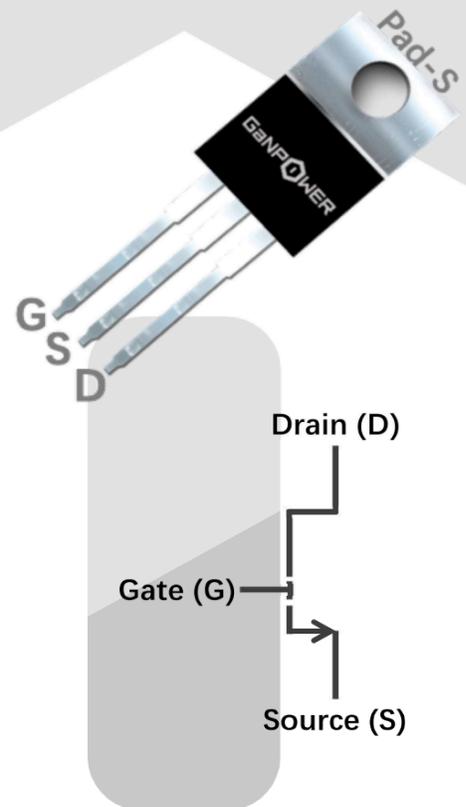
- Ultra-low R_{dson}
- High dv/dt capability
- Extremely low input capacitance
- Zero Qrr
- Outstanding switching performance
- Low Profile

Applications

- Switching Power Applications
- Adapters, Quick Chargers

Description

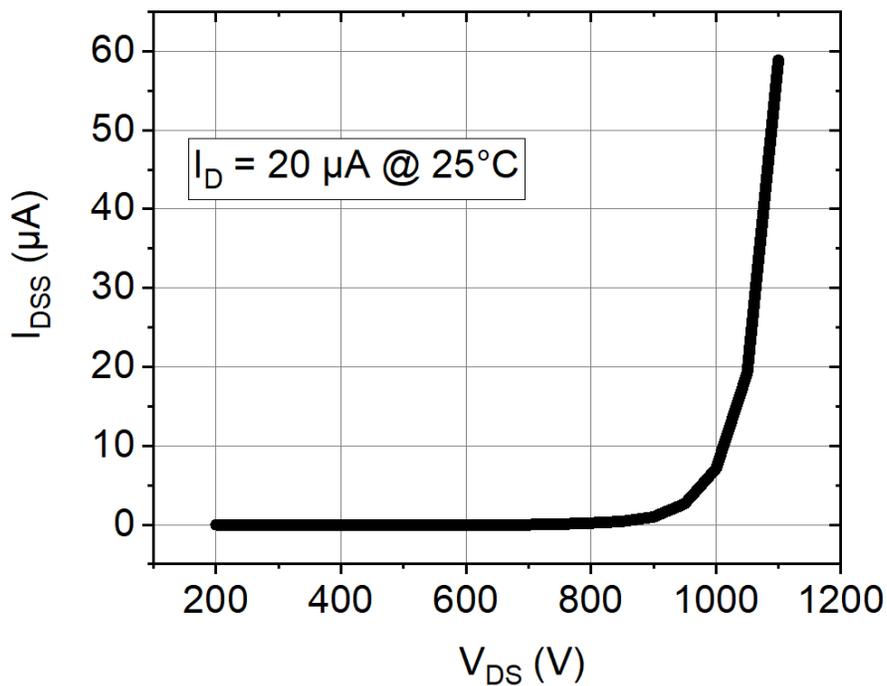
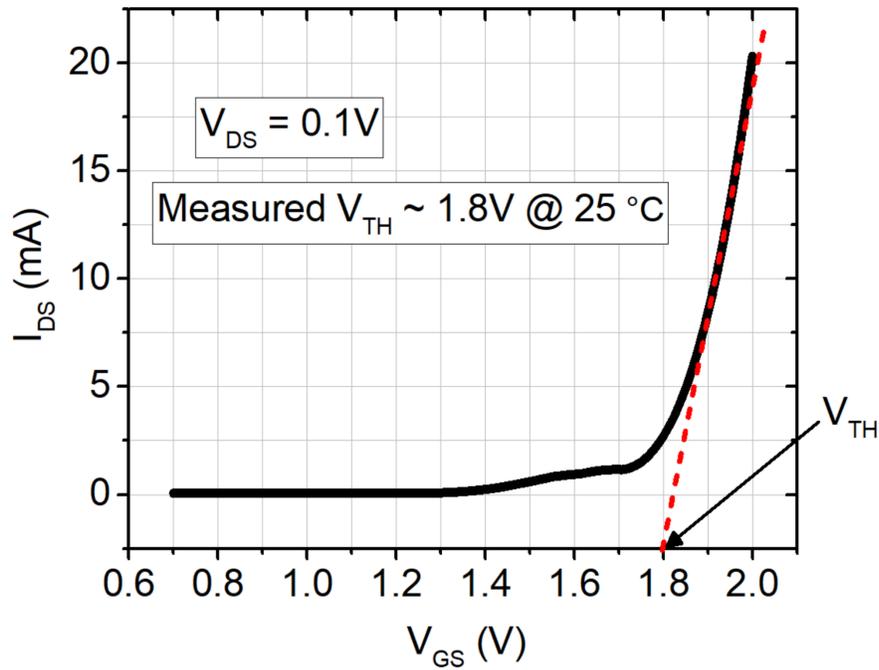
These devices are N-channel 650V Power GaN HEMTs based on proprietary E-mode GaN on silicon technology. The resulting product has extremely low on-state resistance, very low input capacitance and zero reverse recovery charge, making it especially suitable for applications which require superior power density, ultra-high switching frequency and outstanding efficiency.

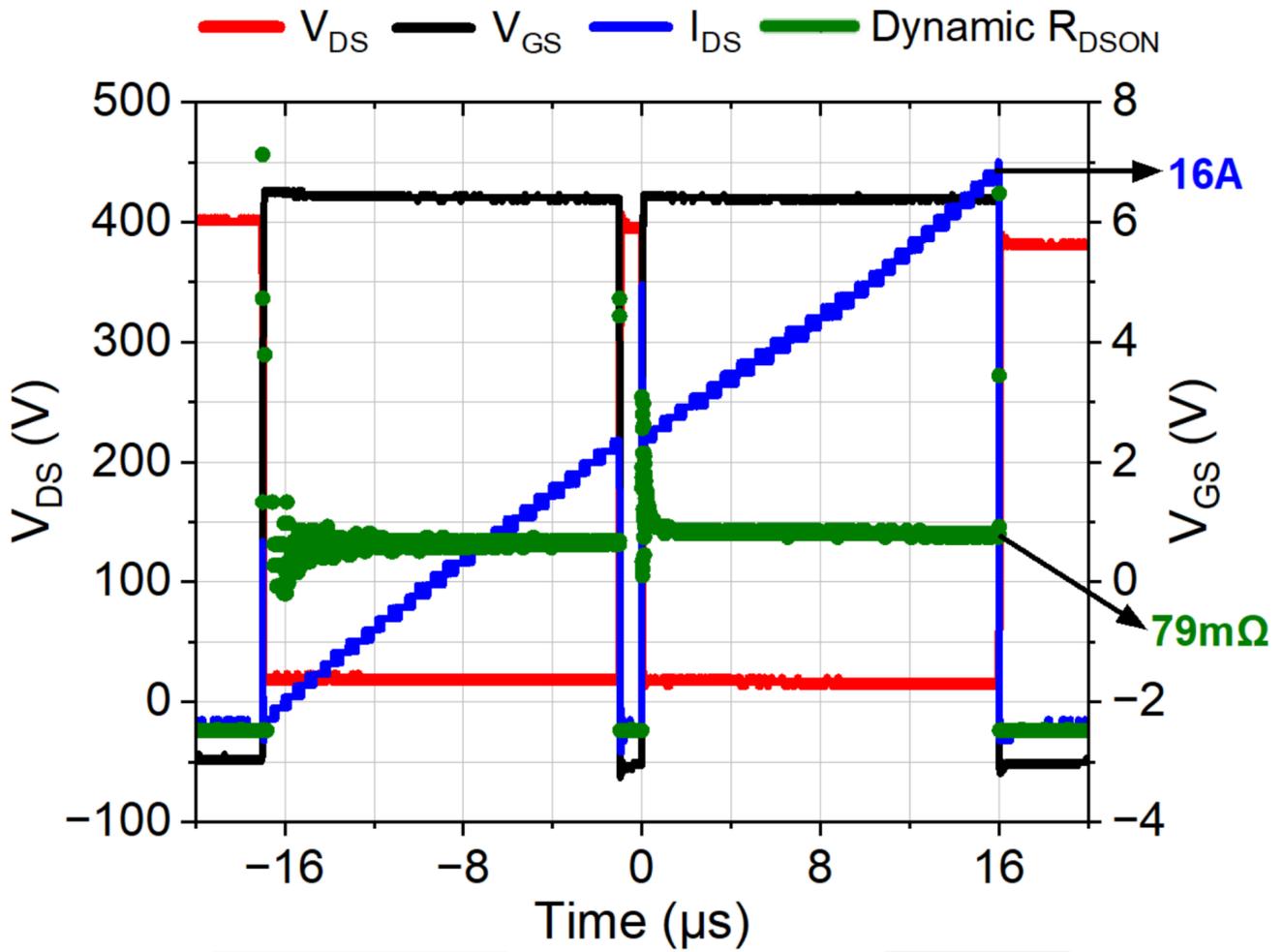


Device Characteristics

Basic Parameters				Test data			
	Parameters		Conditions	Min	Typical	Max	Unit
1	$V_{GS(TH)}$	Zero gate voltage drain current, $T_c = 25^\circ\text{C}$	$V_{ds} = V_{gs}$ $I_d = 3\text{mA}$	0.7	1.4	1.8	μA
2	BV_{dss}	Drain-Source breakdown voltage	$V_{gs} = 0\text{V}$ $I_d < 20\mu\text{A}$		700		V
	I_{dss}	Zero gate voltage drain current, $T_c = 25^\circ\text{C}$	$V_{gs} = 0\text{V}$ $V_{ds} = 650\text{V}$	0.07	0.21	0.4	μA
3	I_{gss}	Gate-Source Leakage @ 25°C	$V_{gs} = 6\text{V}$ $V_{ds} = 0\text{V}$	19	44	95	μA
3	R_{dson}	Static drain-source on resistance, $T_c = 25^\circ\text{C}$	$V_{gs} = 6\text{V}$	48	51	62	$\text{m}\Omega$
Switching Performance				Test data			
	Parameters		Conditions	Min	Typical	Max	Unit
1	$t_{d(on)}$	Turn-on delay time	$V_{ds} = 400\text{V}$ $I_d = 4.5\text{A}$ $V_{gs} = 6\text{V}$ $R_{GON} = 22\Omega$ $R_{GOFF} = 0\Omega$		10.6		ns
2	t_r	Rise time			20		ns
3	$t_{d(off)}$	Turn-off delay time			6.65		ns
4	t_f	Fall time			24		ns

Electrical Performance





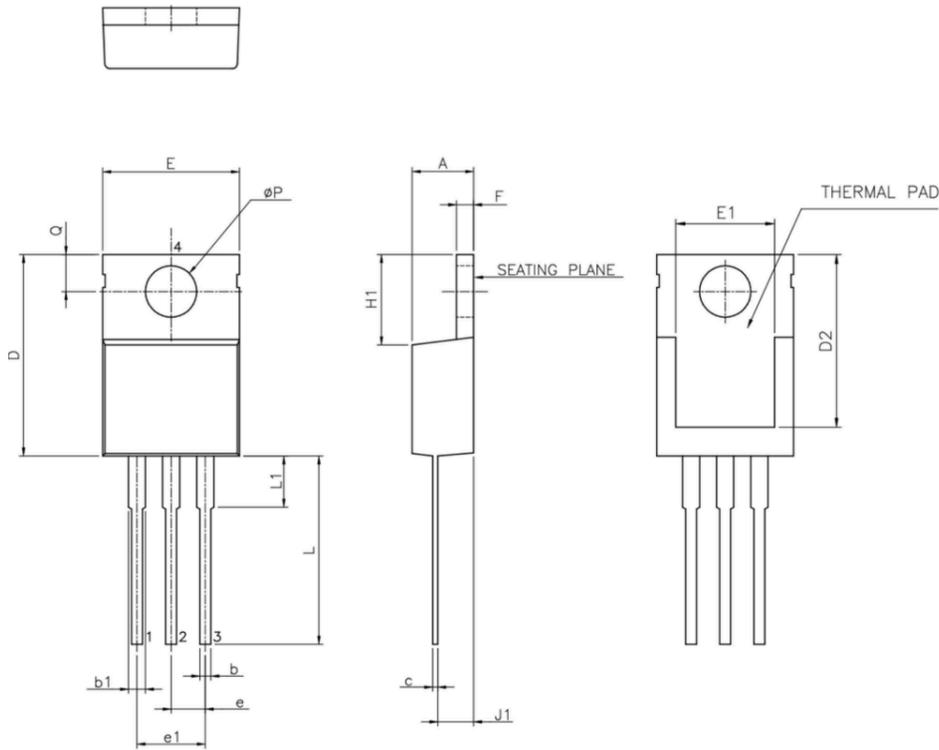
DPT @ 25°C: $V_{BUS} = 400V$, L-load = 375 μ H



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Package Information



VARIATIONS (ALL DIMENSIONS SHOWN IN MM)

SYMBOLS	MIN.	MAX.
A	3.56	4.82
b1	1.15	1.77
b	0.38	1.01
c	0.35	0.61
D	14.23	16.51
E	9.66	10.66
D2	11.75	11.90
E1	6.86	8.90
e	2.29	2.79
e1	4.83	5.33
F	0.51	1.39
H1	5.85	6.85
J1	2.04	2.92
L	12.70	14.73
ϕP	3.54	4.08
Q	2.54	3.42
L1	3.65	6.35

NOTES:

1. JEDEC OUTLINE : N/A.



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Further Information

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Data Source– Data here are based on recent tests but all parameters may not be up to date. Actual final test data from packaging production are available for selected customers upon request.