100 VOLTS PDK

40V transistor

Key electrical parameters of a **40V** e-Mode p-GaN HEMT power device (W_{eff}=120 mm)

Symbol	Description	Test Conditions	Min	Typ	Max	Unit
Absolute Maximum Ratings						
BV_{DS}	Drain-Source voltage			40		V
I_D	Pulsed Drain current	1 ms pulse			24	A
V_{GS}	Gate-Source voltage		-10		7	V
ON/OFF-State Characteristics						
BV_{DS}	Drain-Source voltage	V_{GS} = 0 V	40			V
I_{DSS}	Drain-Source leakage	V_{GS} = 0 V, V_{DS} = 40 V T=25°C		300	<1000	nA/mm
	Drain-Source leakage	V_{GS} = 0 V, V_{DS} = 40 T=150°C		10	<100	µA/mm
I_{GSS}	Gate forward leakage	V_{GS} = 7 V, V_{DS} = 0 V T=25°C		13	<100	µA/mm
R_{DS-ON}	Drain-Source ON resistance	V_{GS} = 7 V, V_{DS} = 0.1 V T=25°C		2.8	5.5	Ω.mm
	Drain-Source ON resistance	V_{GS} = 7 V, V_{DS} = 0.1 V T=150°C		5.3	8.8	
V_{TH}	Gate threshold voltage	Maximum g_m	2.1	2.5	2.9	V
Dynamic Characteristics						
C_{ISS}	Input capacitance	V_{GS} = 0 V V_{DS} = 20 V f = 100 kHz		0.52		pF/mm
C_{OSS}	Output capacitance			0.69		pF/mm
C_{RSS}	Reverse transfer capacitance			62		pF/mm
Dispersion	Dynamic R_{ON} (normalized)	T=25°C till150°C, 0–100 Volt range, Pulsed 10 µs ON - 1990 µs OFF			<25	%

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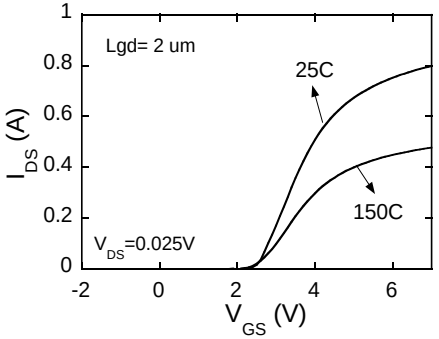
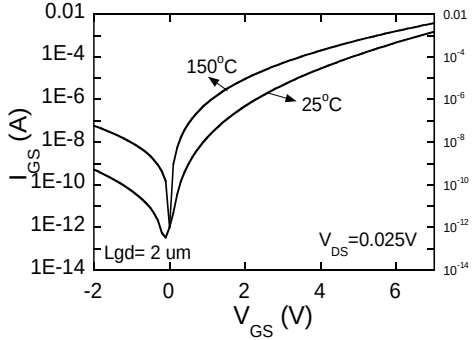
EUROPRACTICE

100 VOLTS PDK

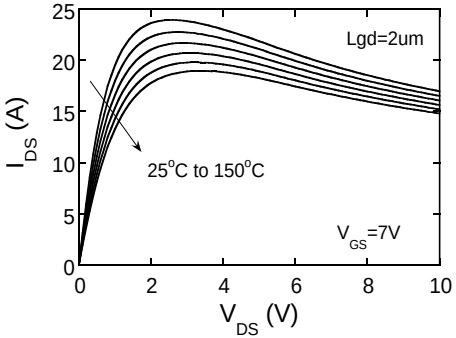
40V transistor



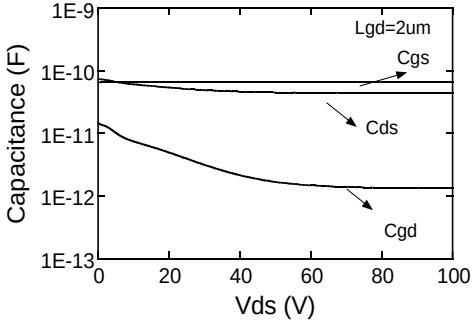
Typical transfer IV curve and transconductance at V_{DS}=0.1V



Typical gate leakage IV curve at T=25°C



Typical output IV curves at V_{GS}=7V at T=25°C to 150°C with 25°C step



Typical off-state capacitance of device at V_{GS}=0

100 VOLTS PDK

100V transistor

Key electrical parameters of a **100V** e-Mode p-GaN HEMT power device (W_{eff}=120 mm)

Symbol	Description	Test Conditions	Min	Typ	Max	Unit
Absolute Maximum Ratings						
BV_{DS}	Drain-Source voltage			100		V
I_D	Pulsed Drain current	1 ms pulse			23	A
V_{GS}	Gate-Source voltage		-10		7	V
ON/OFF-State Characteristics						
BV_{DS}	Drain-Source voltage	V_{GS} = 0 V	100			V
I_{DSS}	Drain-Source leakage	V_{GS} = 0 V, V_{DS} = 100 V T=25°C		300	<1000	nA/mm
	Drain-Source leakage	V_{GS} = 0 V, V_{DS} = 100 T=150°C		10	<100	µA/mm
I_{GSS}	Gate forward leakage	V_{GS} = 7 V, V_{DS} = 0 V T=25°C		13	<100	µA/mm
R_{DS-ON}	Drain-Source ON resistance	V_{GS} = 7 V, V_{DS} = 0.1 V T=25°C		3.5	6	Ω.mm
	Drain-Source ON resistance	V_{GS} = 7 V, V_{DS} = 0.1 V T=150°C		6.8	10	
V_{TH}	Gate threshold voltage	Maximum g_m	2.1	2.5	2.9	V
Dynamic Characteristics						
C_{ISS}	Input capacitance	V_{GS} = 0 V V_{DS} = 100 V f = 100 kHz		0.52		pF/mm
C_{OSS}	Output capacitance			0.61		pF/mm
C_{RSS}	Reverse transfer capacitance			30		pF/mm
Dispersion	Dynamic R_{ON} (normalized)	T=25°C till150°C, 0–100 Volt range, pulsed 10 µs ON - 1990 µs OFF			<25	%

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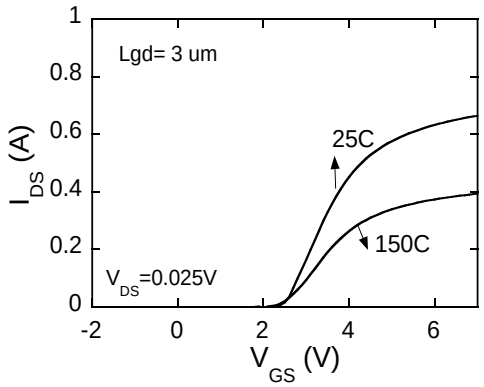
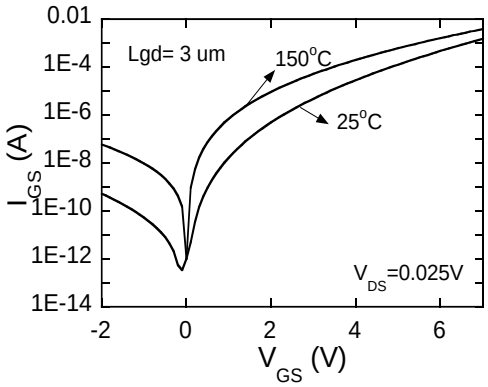
100 VOLTS PDK

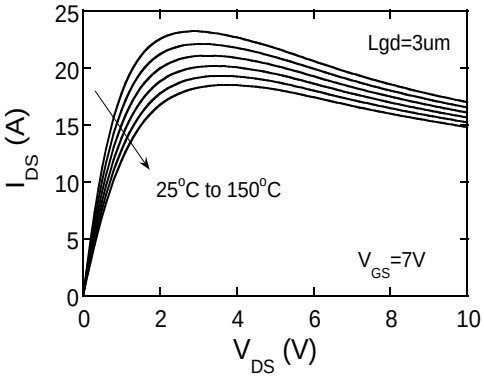
100V transistor



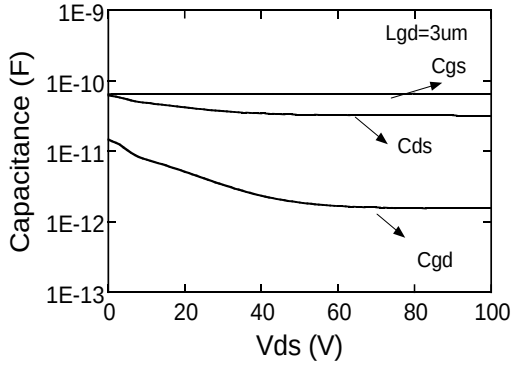
Typical transfer IV curve and transconductance at V_{DS}=0.1V



Typical gate leakage IV curve at T=25°C



Typical output IV curves at V_{GS}=7V at T=25°C to 150°C with 25°C step



Typical off-state capacitance of device at V_{GS}=0