

**150V N-Ch Power MOSFET**

$V_{DS}$	150	V
$R_{DS(on),typ}$	16.0	m
$I_D$ (Silicon Limited)	56	A



Part Number	Package	Marking
HGD195N15S	TO-252	GD195N15S

#### Absolute Maximum Ratings at $T=25^\circ\text{C}$ (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	$I_D$	$T_C=25^\circ\text{C}$	56	A
		$T_C=100^\circ\text{C}$	40	
Drain to Source Voltage	$V_{DS}$	-	150	V
Gate to Source Voltage	$V_{GS}$	-	$\pm 20$	V
Pulsed Drain Current	$I_{DM}$	-	180	A
Avalanche Energy, Single Pulse	$E_{AS}$	$L=0.4\text{mH}, T_C=25^\circ\text{C}$	80	mJ
Power Dissipation	$P_D$	$T_C=25^\circ\text{C}$	136	W
Operating and Storage Temperature	$T_J, T_{stg}$	-	-55 to 175	$^\circ\text{C}$

#### Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{JA}$	50	$^\circ\text{C/W}$
Thermal Resistance Junction-Case	$R_{JC}$	1.1	$^\circ\text{C/W}$

### Electrical Characteristics at $T_J=25^\circ\text{C}$ (unless otherwise specified)

#### Static Characteristics

Parameter	Symbol	Conditions	min	Value typ	max	Unit
Drain to Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{GS}=0\text{V}, I_D=250\text{ A}$	150	-	-	V
Gate Threshold Voltage	$V_{GS(\text{th})}$	$V_{GS}=V_{DS}, I_D=250\text{ A}$	2	3	4	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{GS}=0\text{V}, V_{DS}=150\text{V}, T_J=25^\circ\text{C}$ $V_{GS}=0\text{V}, V_{DS}=150\text{V}, T_J=100^\circ\text{C}$	-	-	1	A
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$	-	-	$\pm 100$	nA
Drain to Source on Resistance	$R_{DS(\text{on})}$	$V_{GS}=10\text{V}, I_D=20\text{A}$	-	16	19.5	m
Transconductance	$g_{fs}$	$V_{DS}=5\text{V}, I_D=20\text{A}$	-	55	-	S
Gate Resistance	$R_G$	$V_{GS}=0\text{V}, V_{DS} \text{ Open}, f=1\text{MHz}$	-	2.2	-	

#### Dynamic Characteristics

Reverse Transfer Capacitance	$C_{rss}$	-	pF
			nC

Fig 1. Typical Output Characteristics

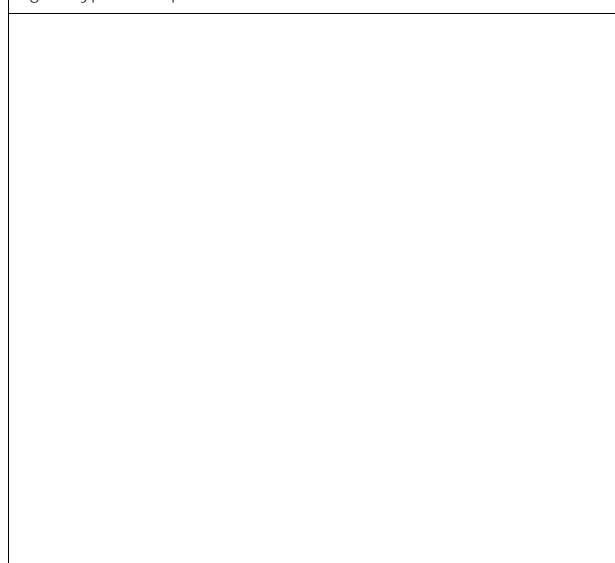


Figure 2. On-Resistance vs. Gate-Source Voltage

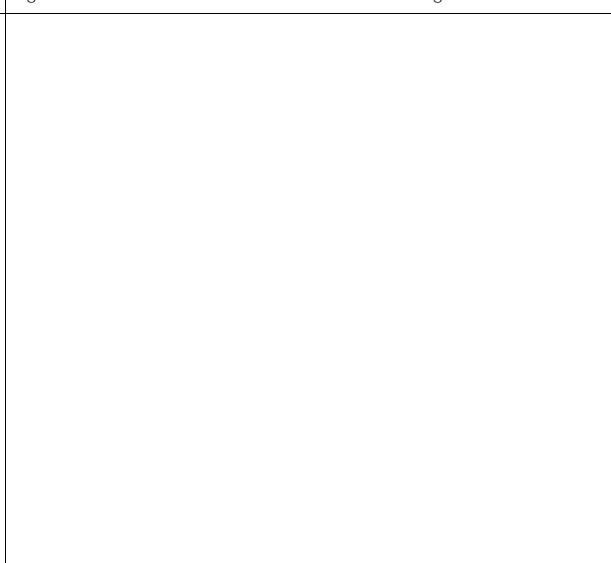


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

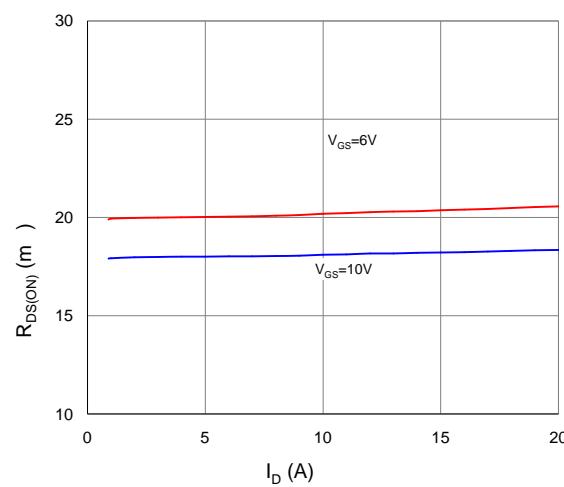


Figure 4. Normalized On-Resistance vs. Junction Temperature

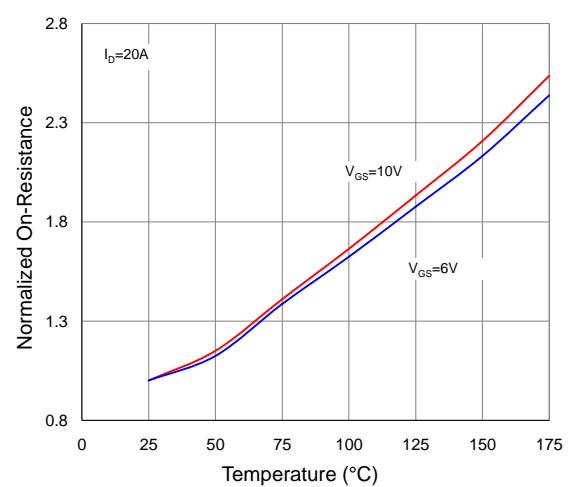


Figure 5. Typical Transfer Characteristics

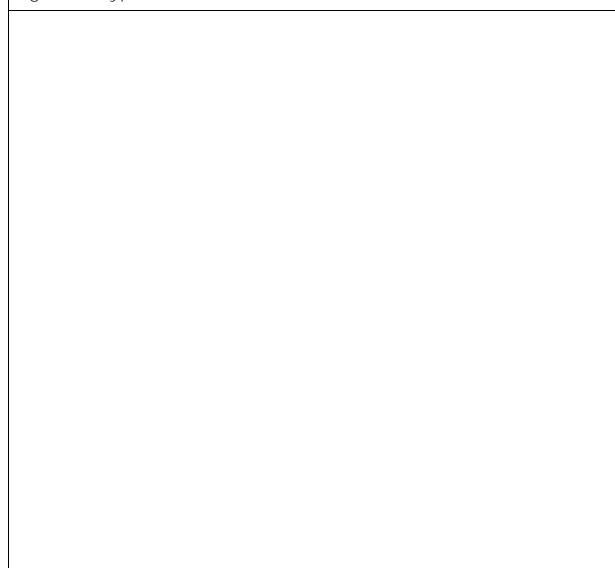


Figure 6. Typical Source-Drain Diode Forward Voltage

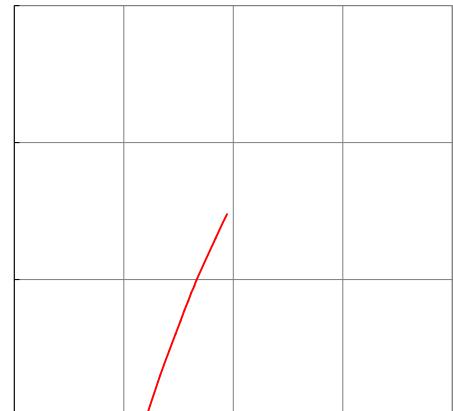


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

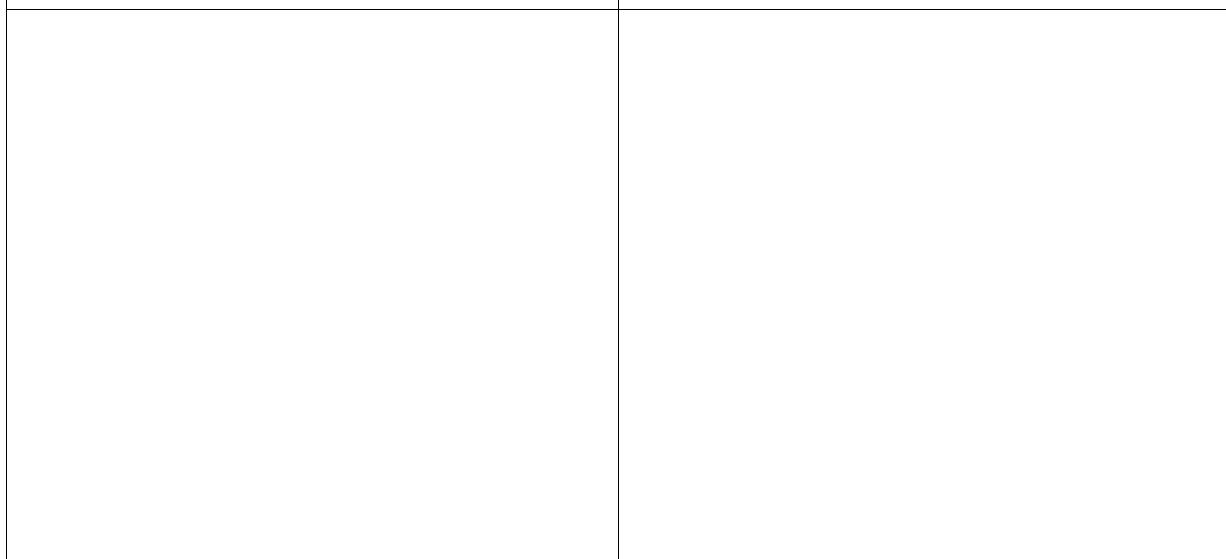


Figure 9. Maximum Safe Operating Area

Figure 10. Maximum Drain Current vs. Case Temperature

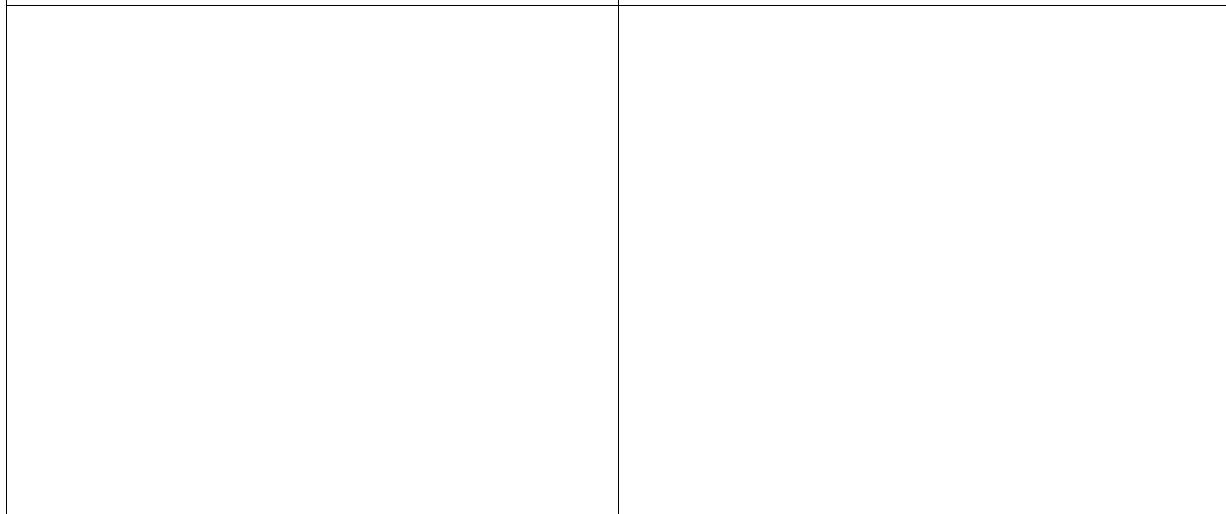
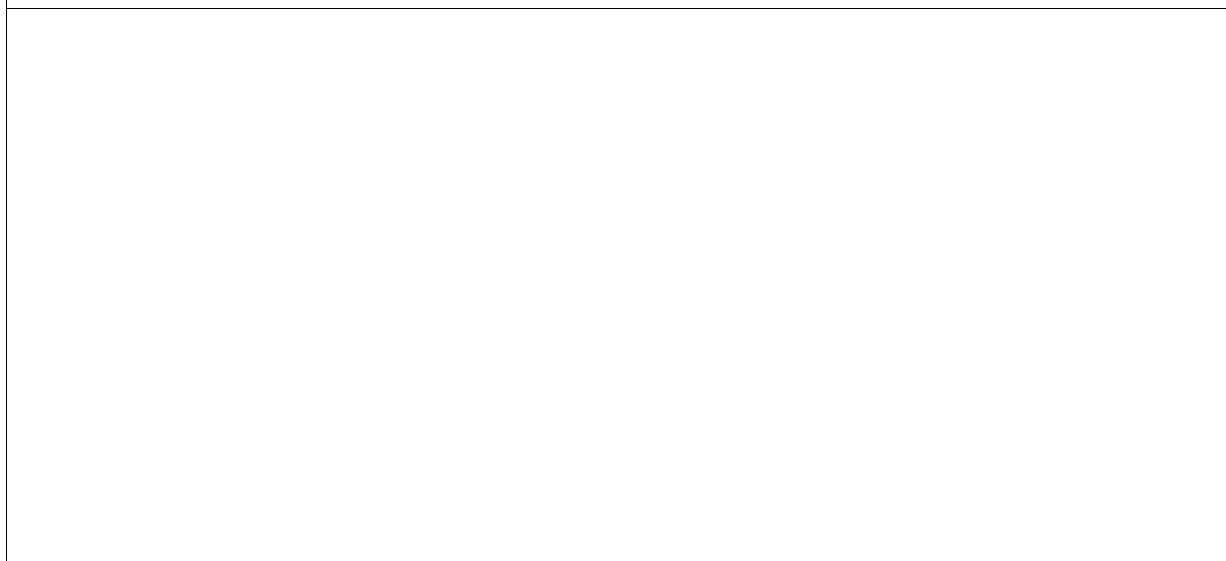
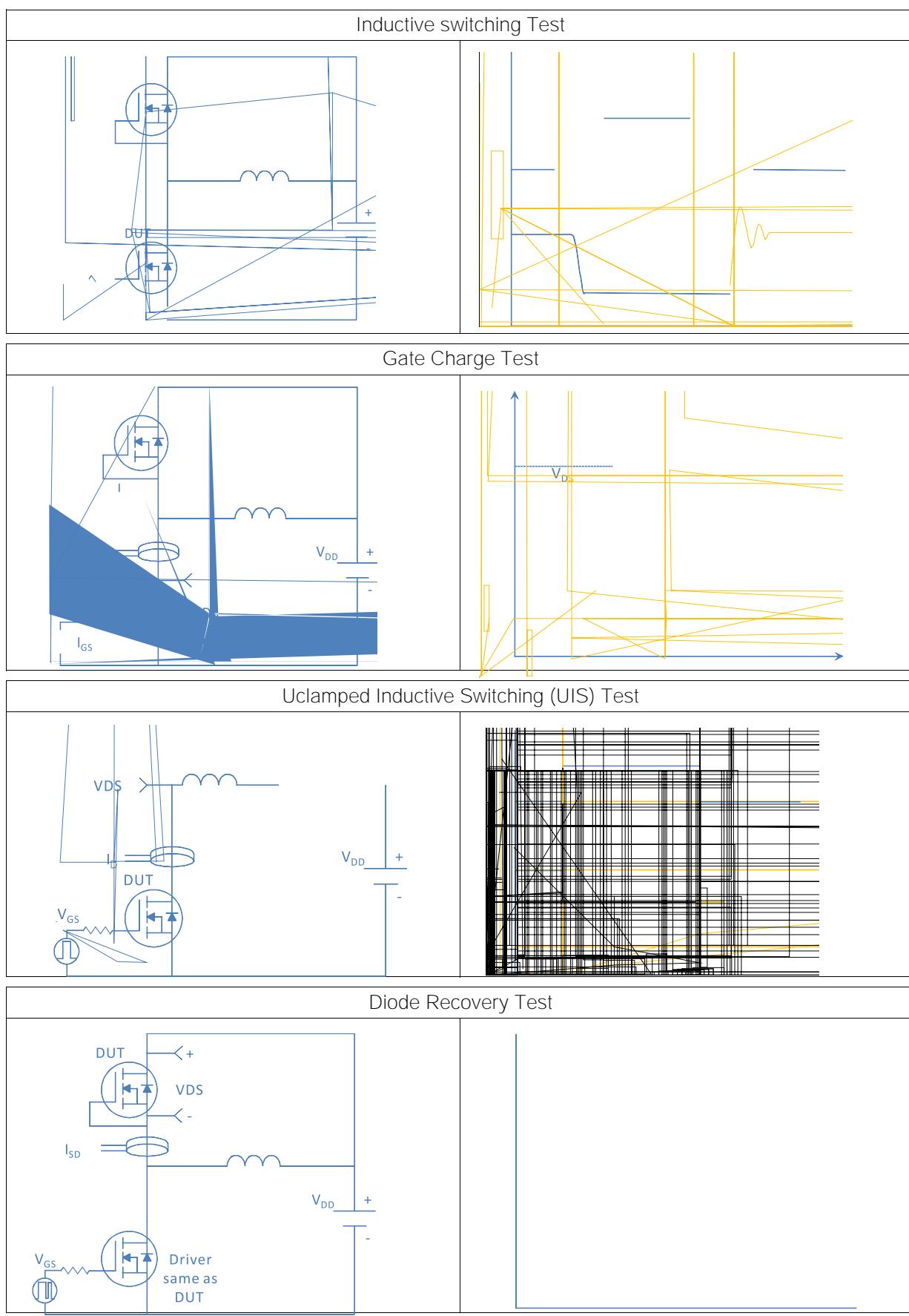


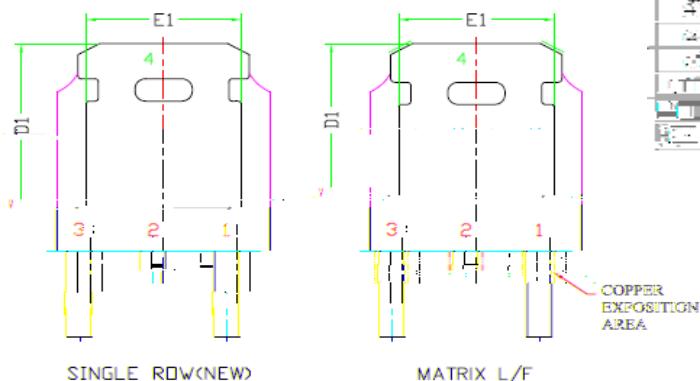
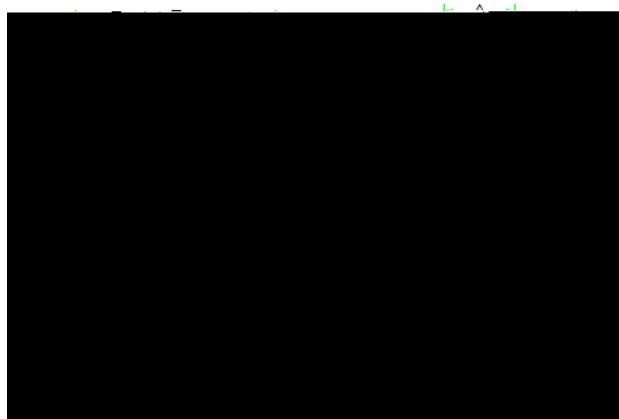
Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient





## Package Outline

TO-252, 3 leads



SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
E	6.40	6.60	6.731
L	1.40	1.52	1.77
L1	2.743	REF	
L2	0.508	BSC	
L3	0.89	--	1.27
L4	0.64	--	1.01
L5	--	--	--
D	6.00	6.10	6.223
D1	2.11	2.20	2.41
D2	1.26	1.28	1.30
D3	0.79	0.80	0.82
D4	0.51	0.52	0.54
D5	0.27	0.28	0.30
D6	0.27	0.28	0.30
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