

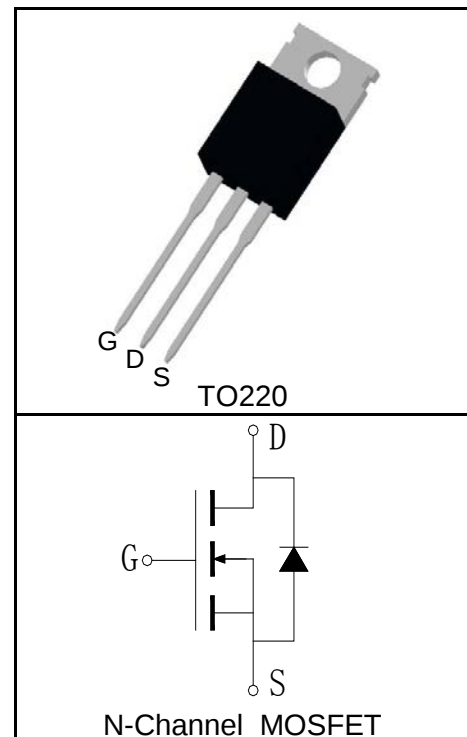
Features

- 200V/30A,
RDS (ON) =75mΩ(Typ.) @ VGS=10V
- Ultra Low On-Resistance
- Fast Switching and Fully Avalanche Rated
- 100% avalanche tested
- 175°C Operating Temperature
- Lead Free and Green Available

Applications

- Switching Application Systems
- UPS

Pin Description



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		200	V
V _{GSS}	Gate-Source Voltage		±25	
T _J	Maximum Junction Temperature		175	°C
T _{STG}	Storage Temperature Range		-55 to 175	°C
I _S	Diode Continuous Forward Current	T _C =25°C	30	A
Mounted on Large Heat Sink				
I _{DP} ①	300μs Pulse Drain Current Tested	T _C =25°C	120	A
I _D ②	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	30	A
		T _C =100°C	23	
P _D	Maximum Power Dissipation	T _C =25°C	176	W
		T _C =100°C	88	
R _{θJC}	Thermal Resistance-Junction to Case		0.85	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient		62.5	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ③	Avalanche Energy, Single Pulsed		81	mJ

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU2H30R			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	200			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =200V, V _{GS} =0V			1	μA
			T _J =125°C		30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2		4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V			±100	nA
R _{DS(ON)} ^④	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =17A		75	85	mΩ
Diode Characteristics						
V _{SD} ^④	Diode Forward Voltage	I _{SD} =30A, V _{GS} =0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =30A, dI _{SD} /dt=100A/μs		150		ns
Q _{rr}	Reverse Recovery Charge			125		nC
Dynamic Characteristics ^⑤						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		1		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =100V, Frequency=1.0MHz		2140		pF
C _{oss}	Output Capacitance			308		
C _{rss}	Reverse Transfer Capacitance			78		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =100V, R _L =3Ω, I _{DS} =30A, V _{GEN} =10V, R _G =6Ω		16		ns
t _r	Turn-on Rise Time			48		
t _{d(OFF)}	Turn-off Delay Time			38		
t _f	Turn-off Fall Time			33		
Gate Charge Characteristics ^⑤						
Q _g	Total Gate Charge	V _{DS} =160V, V _{GS} =10V, I _{DS} =30A		116		nC
Q _{gs}	Gate-Source Charge			23		
Q _{gd}	Gate-Drain Charge			52		

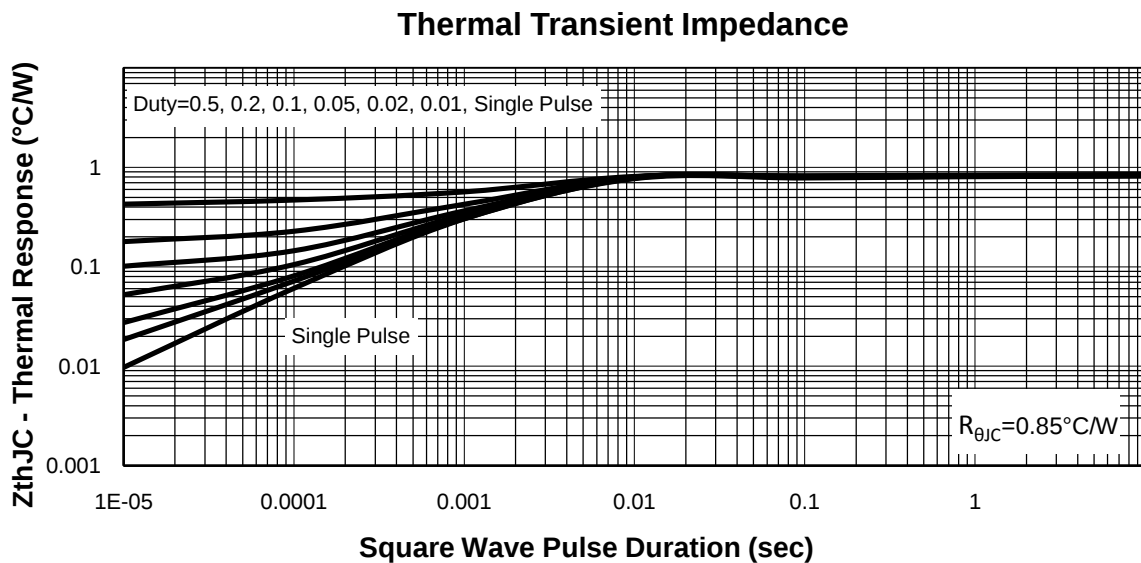
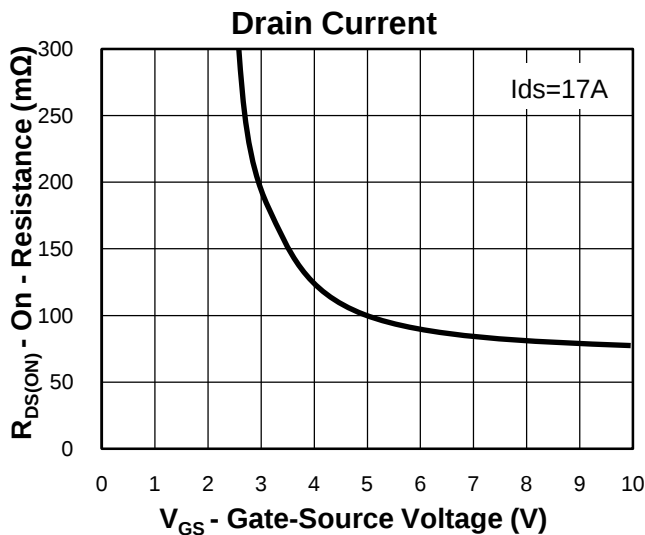
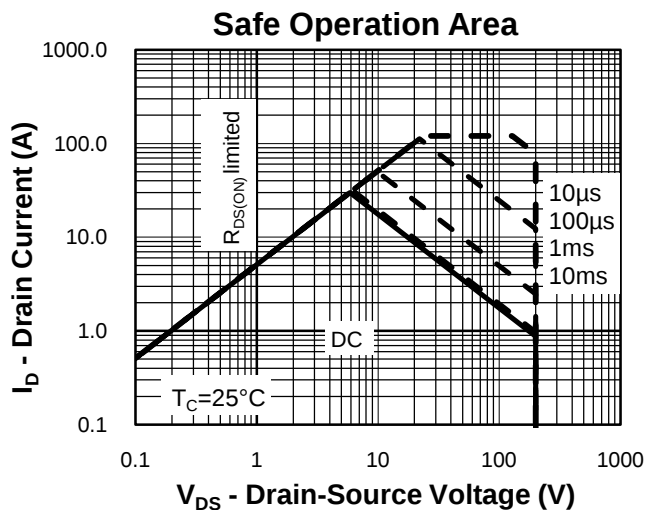
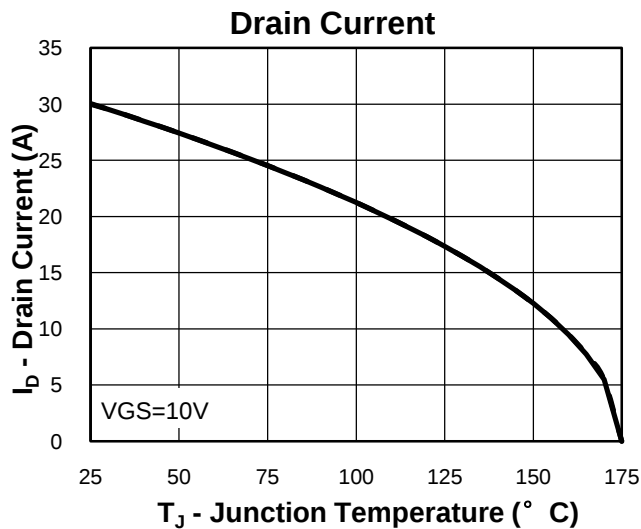
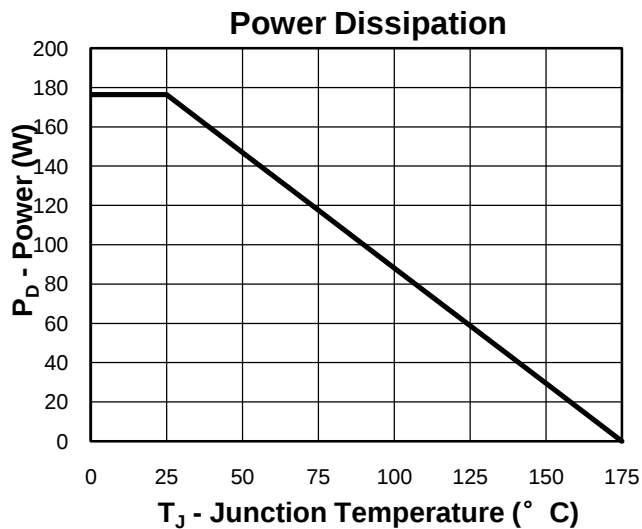
Notes:

- ① Pulse width limited by safe operating area.
- ② Calculated continuous current based on maximum allowable junction temperature.
- ③ Limited by T_{Jmax} , $I_{AS}=18A$, $V_{DD}=60V$, $R_G=50\Omega$, Starting $T_J=25^{\circ}\text{C}$.
- ④ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- ⑤ Guaranteed by design, not subject to production testing.

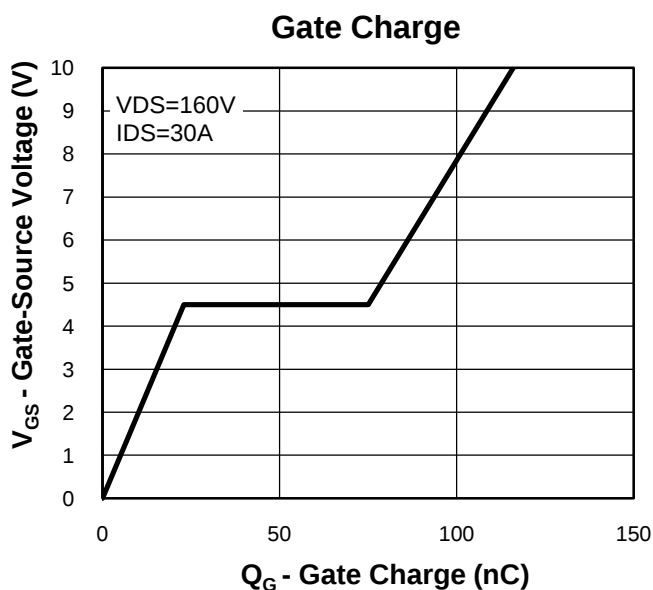
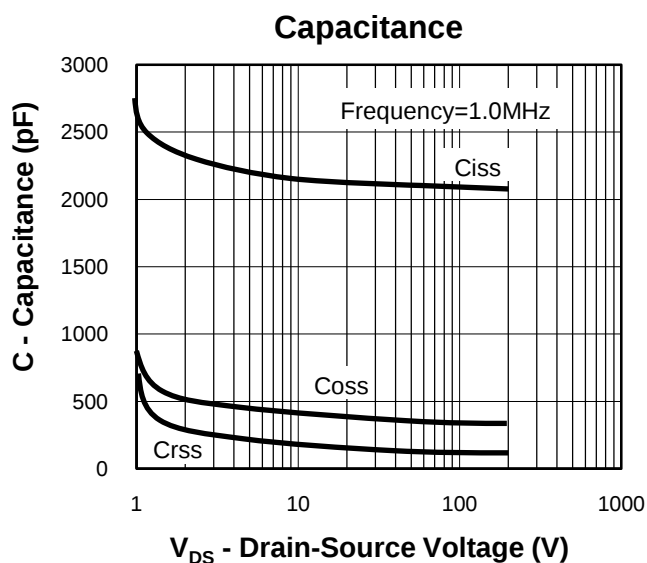
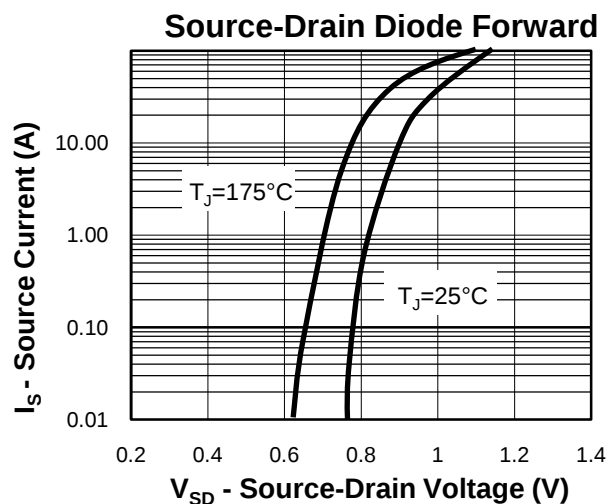
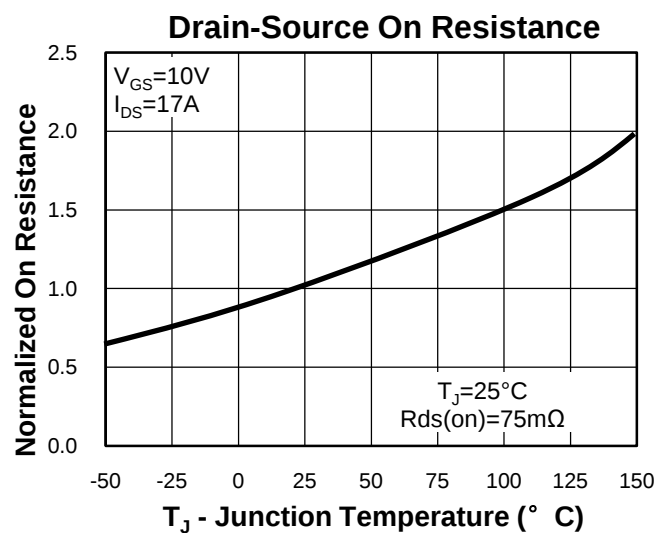
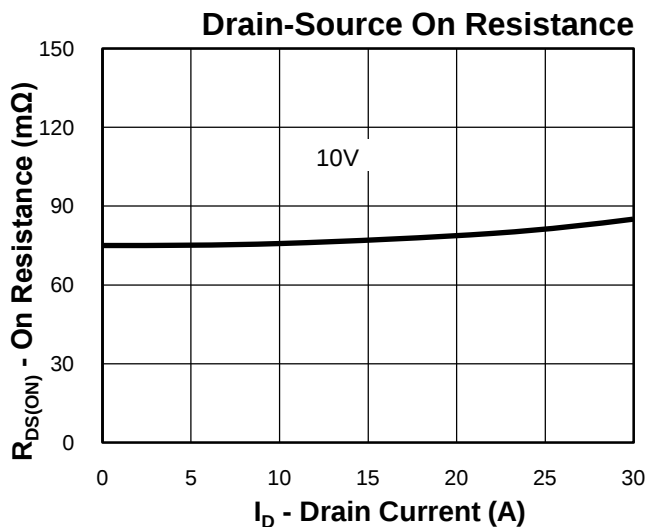
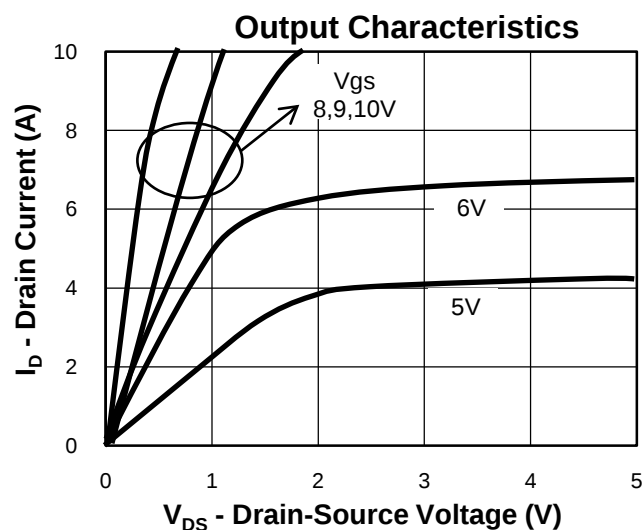
Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU2H30R	RU2H30R	TO220	Tube	50	-	-

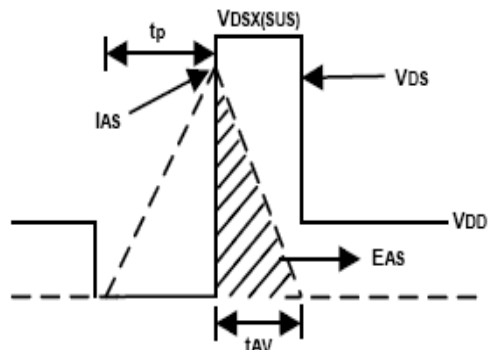
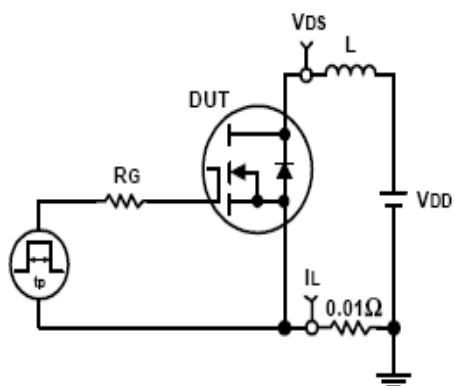
Typical Characteristics



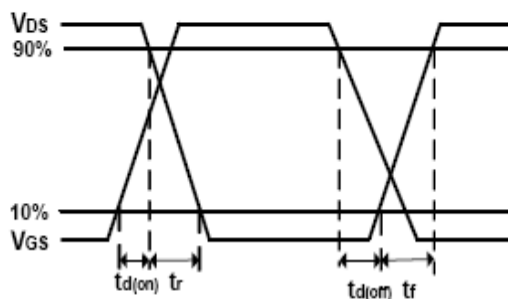
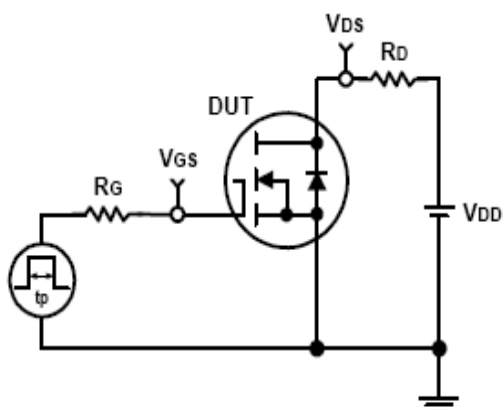
Typical Characteristics



Avalanche Test Circuit and Waveforms

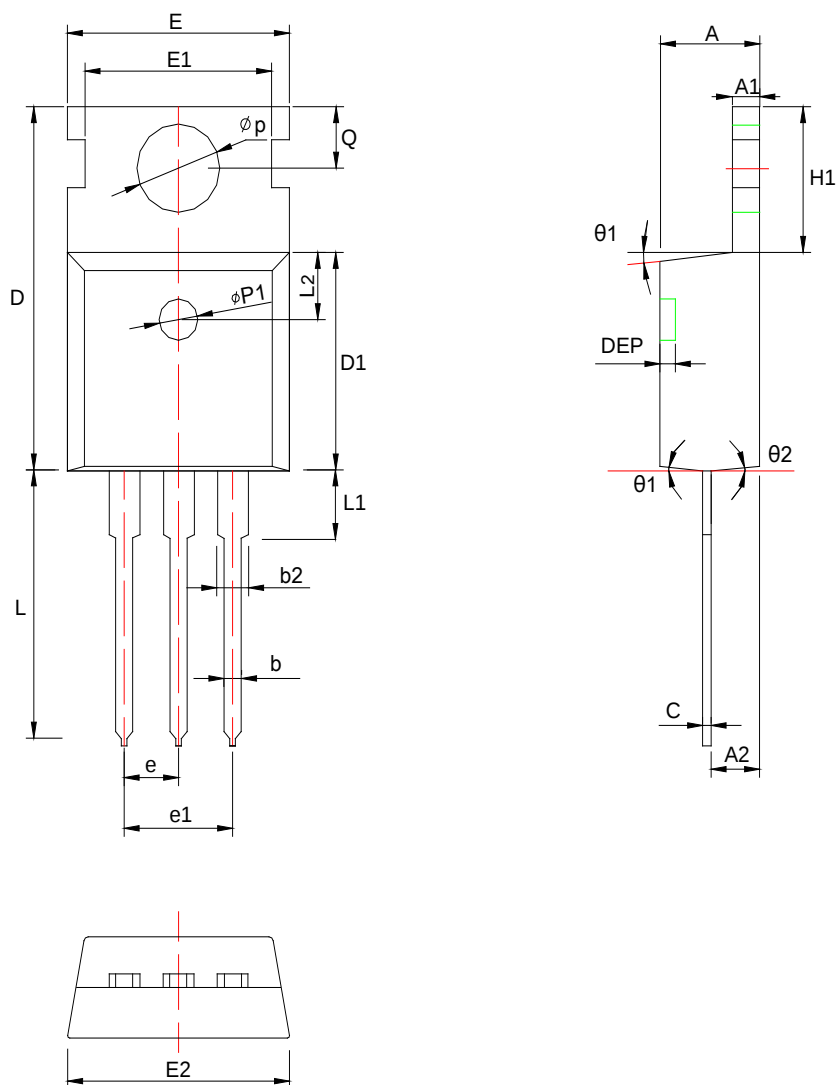


Switching Time Test Circuit and Waveforms



Package Information

TO220



SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.55	4.70	0.173	0.179	0.185	Φp1	1.40	1.50	1.60	0.055	0.059	0.063
A1	1.20	1.30	1.40	0.047	0.051	0.055	e	2.54 BSC			0.10 BSC		
A2	2.23	2.38	2.53	0.088	0.094	0.100	e1	5.08 BSC			0.20 BSC		
b	0.75	0.80	0.85	0.030	0.031	0.033	H1	6.40	6.50	6.60	0.252	0.256	0.260
b2	1.17	1.28	1.39	0.046	0.050	0.055	L	12.70	13.18	13.65	0.500	0.519	0.537
c	0.40	0.50	0.60	0.016	0.020	0.024	L1	*	*	3.95	*	*	0.156
D	15.40	15.60	15.80	0.606	0.614	0.622	L2	2.50 REF			0.098 REF		
D1	8.96	9.21	9.46	0.353	0.363	0.372	Φp	3.50	3.60	3.70	0.138	0.142	0.146
DEP	0.05	0.13	0.20	0.002	0.005	0.008	Q	2.73	2.80	2.87	0.107	0.110	0.113
E	9.66	9.97	10.28	0.380	0.393	0.405	θ 1	5°	7°	9°	5°	7°	9°
E1	*	8.70	*	*	0.343	*	θ 2	1°	3°	5°	1°	3°	5°
E2	9.80	10.00	10.20	0.386	0.394	0.402							

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