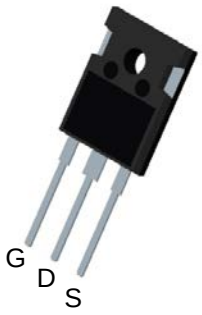
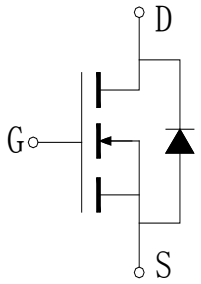
Features

•100V/130A,
RDS (ON) =7mΩ(Typ.)@VGS=10V
• Super High Dense Cell Design
• Ultra Low On-Resistance
• 100% avalanche tested
• Lead Free and Green Devices Available (RoHS Compliant)

Pin Description



TO247



N-Channel MOSFET

Applications

• High Efficiency Synchronous Rectification in SMPS
• High Speed Power Switching

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T_C=25°C Unless Otherwise Noted)				
V_{DSS}	Drain-Source Voltage		100	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	130	A
Mounted on Large Heat Sink				
I_{DP} ①	300μs Pulse Drain Current Tested	T_C=25°C	520	A
I_D ②	Continuous Drain Current(V_{GS}=10V)	T_C=25°C	130	A
		T_C=100°C	92	
P_D	Maximum Power Dissipation	T_C=25°C	312	W
		T_C=100°C	156	
$R_{\theta JC}$	Thermal Resistance-Junction to Case		0.48	°C/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		50	°C/W
Drain-Source Avalanche Ratings				
E_{AS} ③	Avalanche Energy, Single Pulsed		552	mJ

Electrical Characteristics (T_C=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU1H130Q			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V, 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}=65A		7	9	mΩ
Diode Characteristics						
V_{SD}④	Diode Forward Voltage	I_{SD}=65A, V_{GS}=0V			1.2	V
t_{rr}	Reverse Recovery Time	I_{SD}=65A, dI_{SD}/dt=100A/μs		42		ns
Q_{rr}	Reverse Recovery Charge			64		μC
Dynamic Characteristics⑤						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz		1		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=50V, Frequency=1.0MHz		6800		pF
C_{oss}	Output Capacitance			630		
C_{rss}	Reverse Transfer Capacitance			350		
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=50V, R_L=1Ω, I_{DS}=65A, V_{GEN}=10V, R_G=5Ω		22		ns
t_r	Turn-on Rise Time			86		
$t_{d(OFF)}$	Turn-off Delay Time			72		
t_f	Turn-off Fall Time			66		
Gate Charge Characteristics⑤						
Q_g	Total Gate Charge	V_{DS}=80V, V_{GS}=10V, I_{DS}=65A		130		nC
Q_{gs}	Gate-Source Charge			32		
Q_{gd}	Gate-Drain Charge			55		

Notes:

①Pulse width limited by safe operating area.

②Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 90A.

③Limited by T_{Jmax}, I_{AS} =47A, V_{DD} = 48V, R_G = 50Ω , Starting T_J = 25°C.

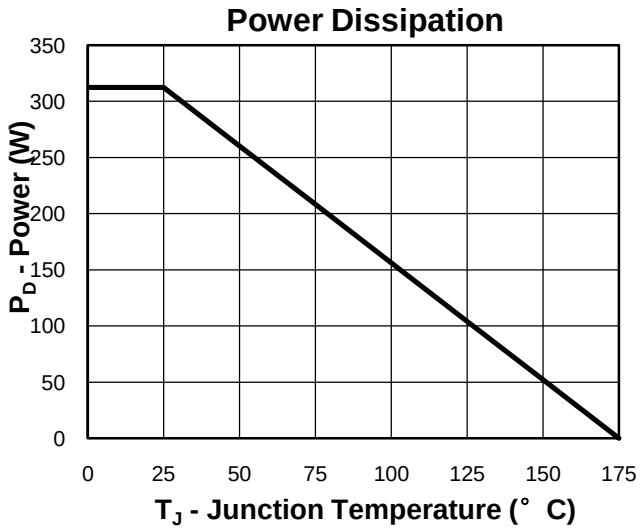
④Pulse test ; Pulse width≤300μs, duty cycle≤2%.

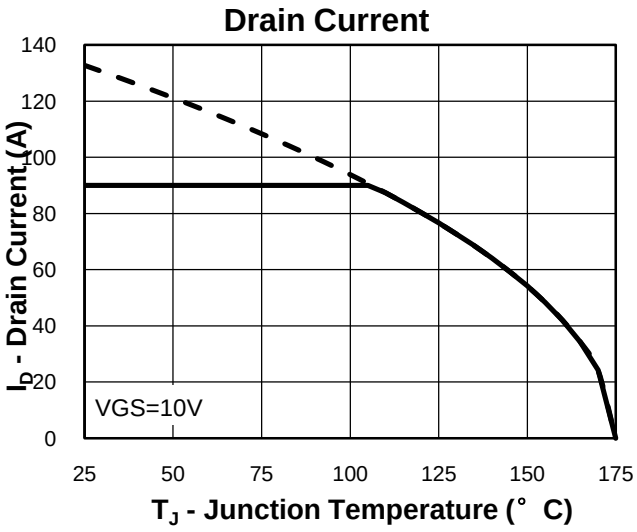
⑤Guaranteed by design, not subject to production testing.

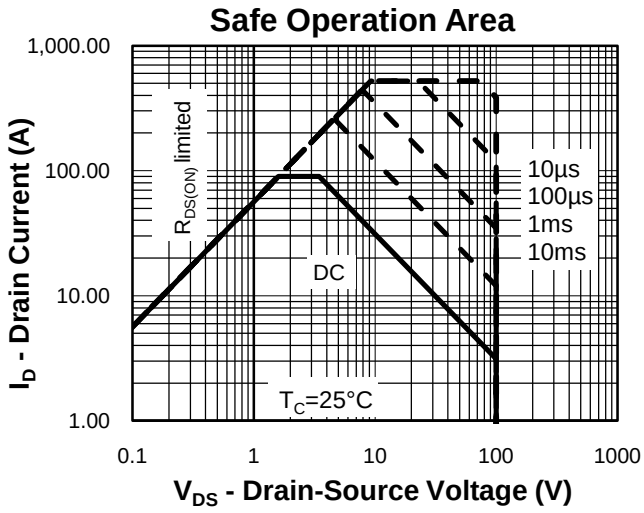
Ordering and Marking Information

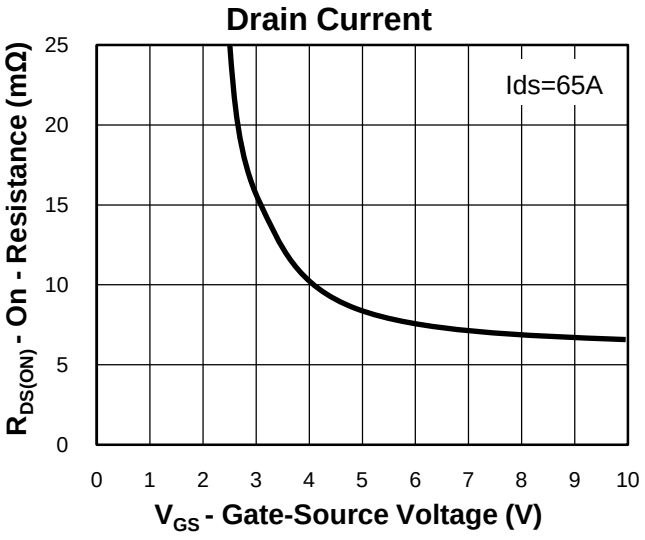
Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU1H130Q	RU1H130Q	TO247	Tube	30	-	-

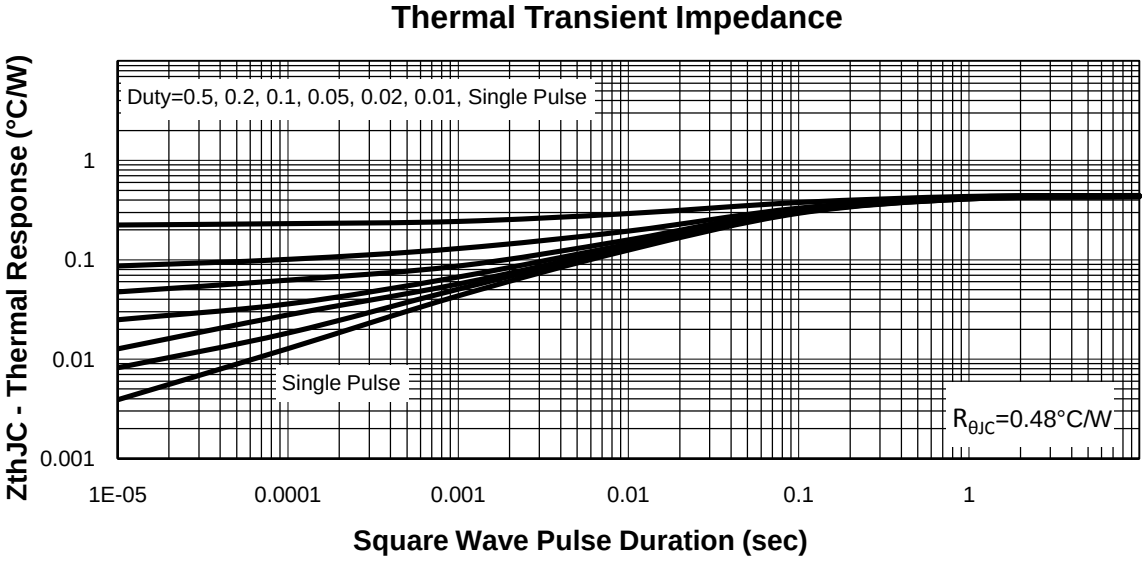
Typical Characteristics



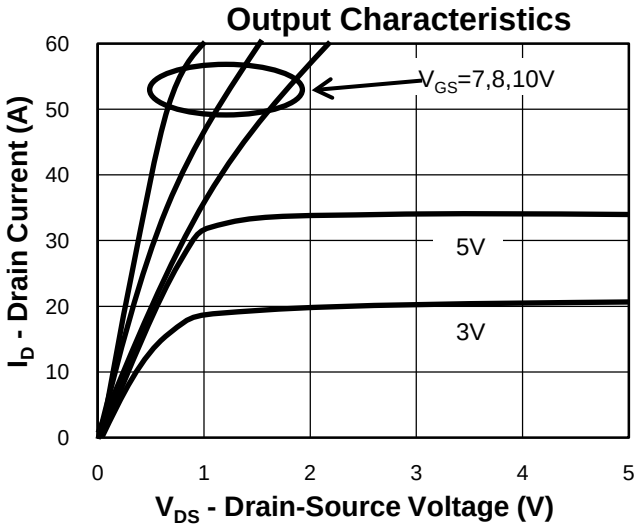


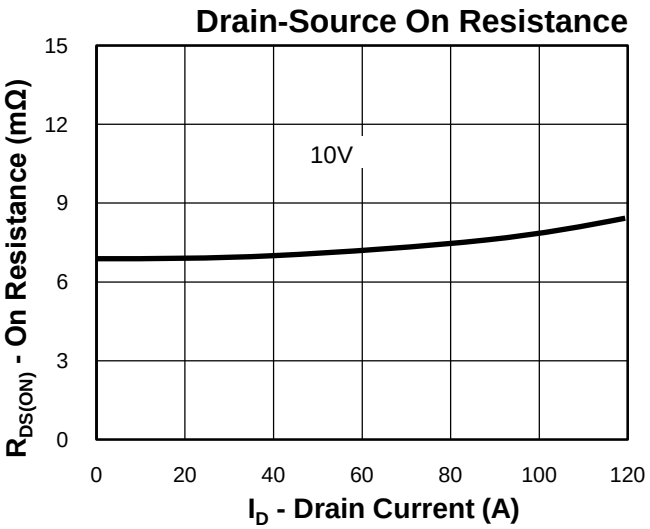


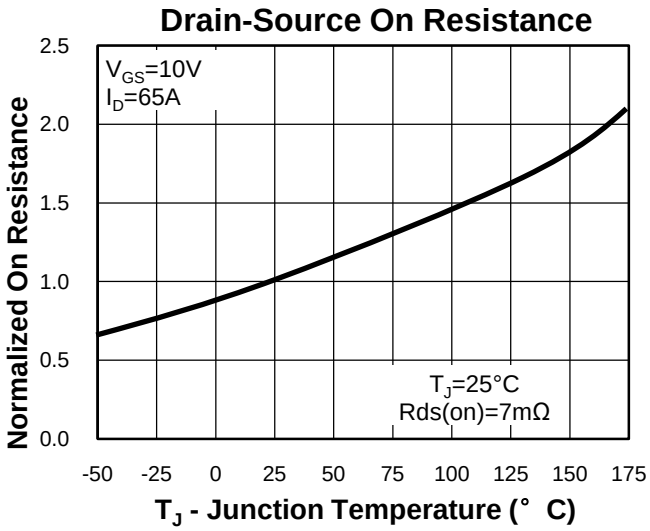


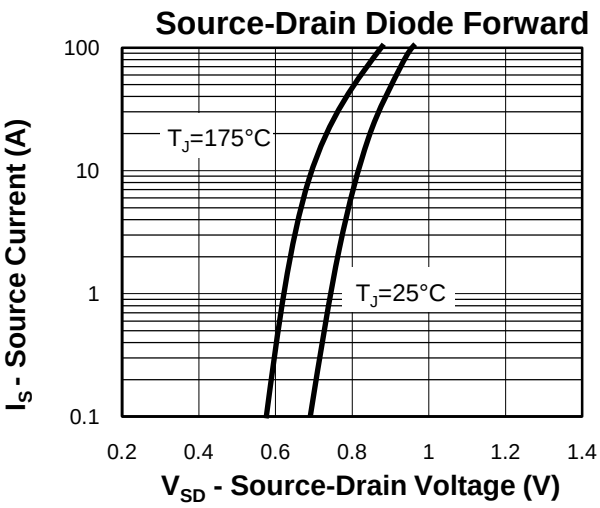


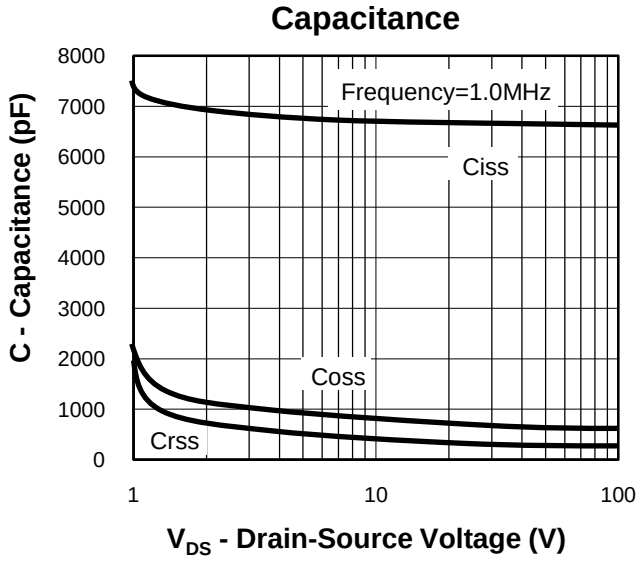
Typical Characteristics

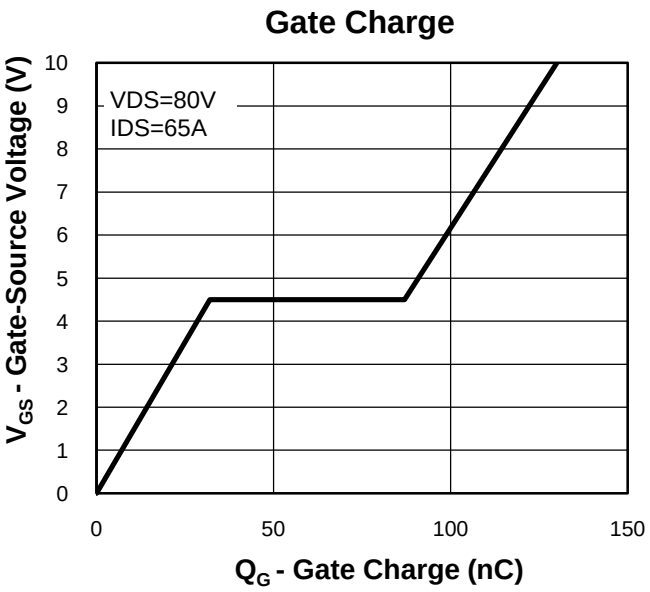




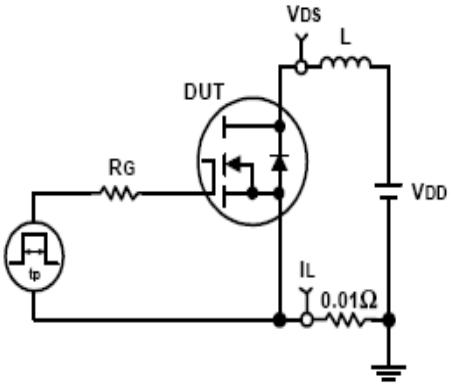


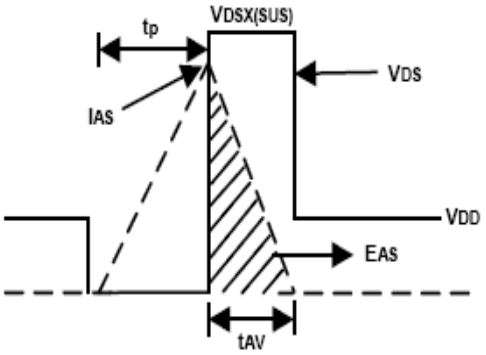




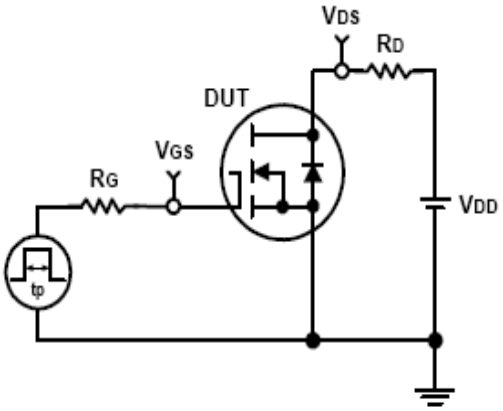


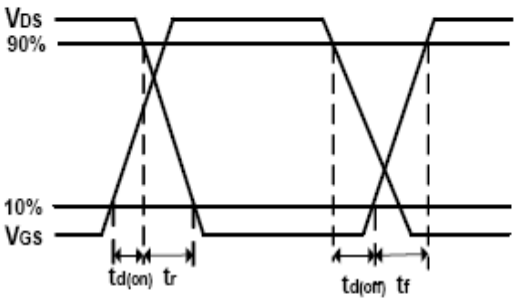
Avalanche Test Circuit and Waveforms





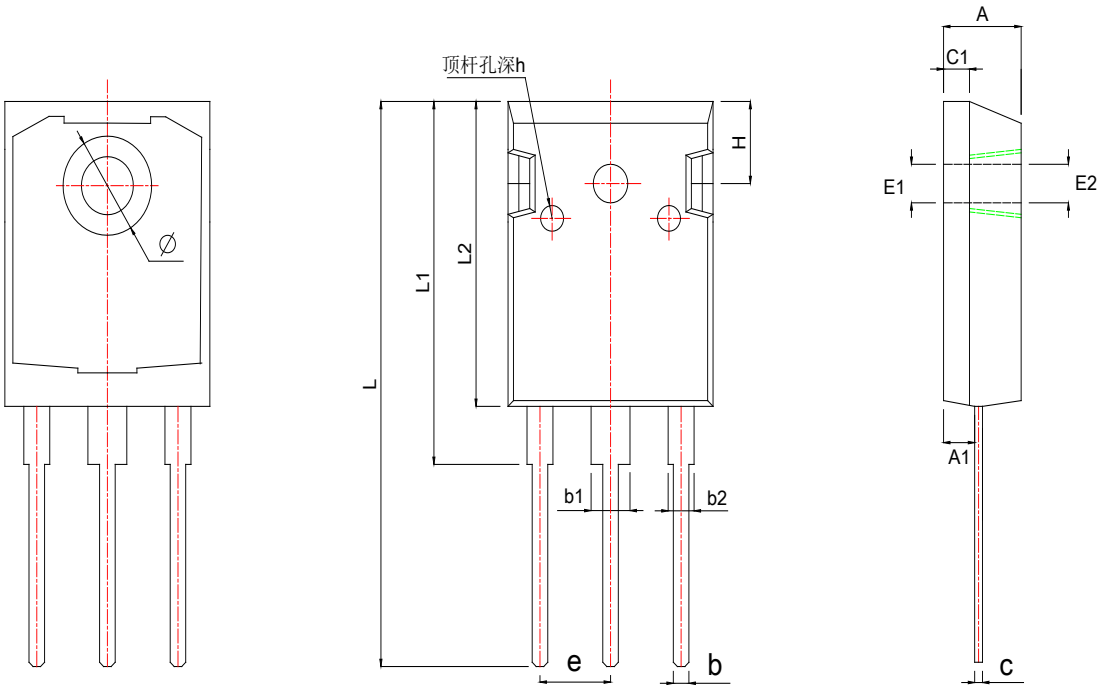
Switching Time Test Circuit and Waveforms

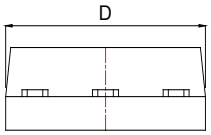




Package Information

TO247





SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.850	5.000	5.150	0.191	0.197	0.203
A1	2.200	2.400	2.600	0.087	0.094	0.102
b	1.000	1.200	1.400	0.039	0.047	0.055
b1	2.800	3.000	3.200	0.110	0.118	0.126
b2	1.800	2.000	2.200	0.071	0.079	0.087
c	0.500	0.600	0.700	0.020	0.024	0.028
c1	1.900	2.000	2.100	0.075	0.079	0.083
D	15.450	15.600	15.750	0.608	0.614	0.620
E1	3.500REF			0.138REF		
E2	3.600REF			0.142REF		
L	40.900	41.100	41.300	1.610	1.618	1.626
L1	24.800	24.950	25.100	0.976	0.982	0.988
L2	20.300	20.450	20.600	0.799	0.805	0.811
Φ	7.10	7.20	7.30	0.280	0.283	0.287
e	5.450TYP			0.215TYP		
H	5.980REF			0.235REF		
h	0.000	0.150	0.300	0.000	0.006	0.012

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