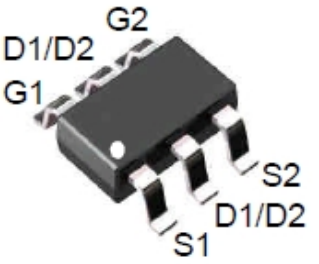
RU8205C6

N-Channel Advanced Power MOSFET

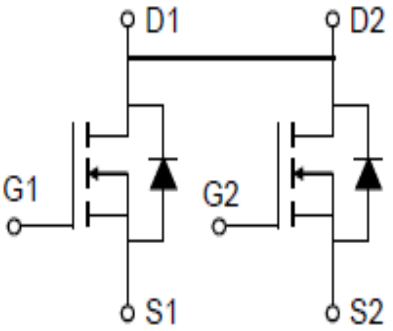
Features

- 20V/6A,
  $R_{DS(ON)}$ =22mΩ (Typ.) @ V_{GS}=4.5V
  $R_{DS(ON)}$ =30mΩ (Typ.) @ V_{GS}=2.5V
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free and Green Available

Pin Description



SOT-23-6



Dual N-Channel MOSFET

Applications

- Power Management

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T_A=25°C Unless Otherwise Noted)				
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	T_A=25°C	1.7	A
Mounted on Large Heat Sink				
I_{DP}	300μs Pulse Drain Current Tested	T_A=25°C	24①	A
I_D	Continuous Drain Current(VGS=4.5V)	T_A=25°C	6	A
		T_A=70°C	4.5	
P_D	Maximum Power Dissipation	T_A=25°C	1.25	W
		T_A=70°C	0.8	
$R_{\theta JA}$②	Thermal Resistance-Junction to Ambient		100	°C/W

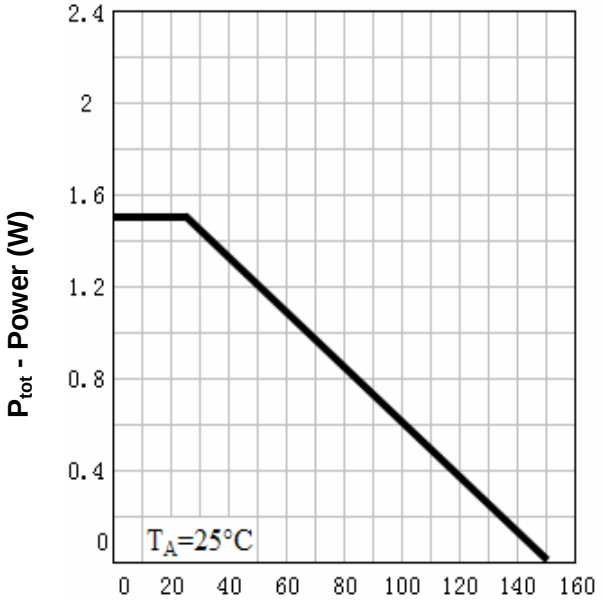
Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU8205C6			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V			1	μA
		T_J=85°C			30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	0.5	0.7	1.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±10V, V_{DS}=0V			±100	nA
$R_{DS(ON)}$ ③	Drain-Source On-state Resistance	V_{GS}=4.5V, I_{DS}=6A		22	30	mΩ
		V_{GS}=2.5V, I_{DS}=5A		30	40	mΩ
Diode Characteristics						
V_{SD} ③	Diode Forward Voltage	I_{SD}=1A, V_{GS}=0V			1	V
Dynamic Characteristics ④						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz		1.8		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V, Frequency=1.0MHz		580		pF
C_{oss}	Output Capacitance			120		
C_{rss}	Reverse Transfer Capacitance			95		
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=10V, R_L=1.7Ω, I_{DS}=6A, V_{GEN}=4.5V, R_G=6Ω		5		ns
t_r	Turn-on Rise Time			11		
$t_{d(OFF)}$	Turn-off Delay Time			38		
t_f	Turn-off Fall Time			13		
Gate Charge Characteristics ④						
Q_g	Total Gate Charge	V_{DS}=16V, V_{GS}=4.5V, I_{DS}=6A		10	14	nC
Q_{gs}	Gate-Source Charge			1.5		
Q_{gd}	Gate-Drain Charge			3.4		

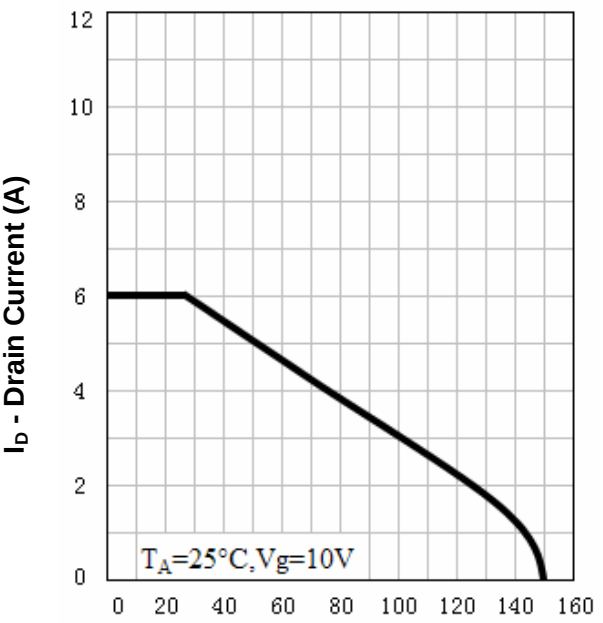
Notes: ①Pulse width limited by safe operating area.
②When mounted on 1 inch square copper board, t ≤10sec.
③Pulse test ; Pulse width≤300μs, duty cycle≤2%.
④Guaranteed by design, not subject to production testing.

Typical Characteristics

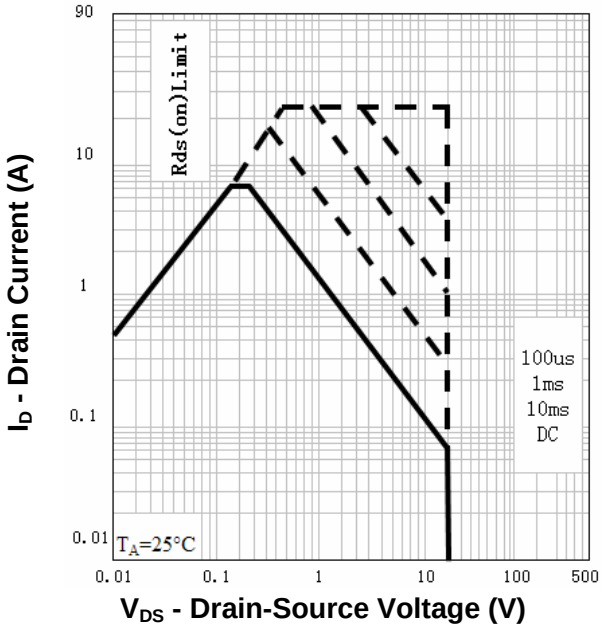
Power Dissipation



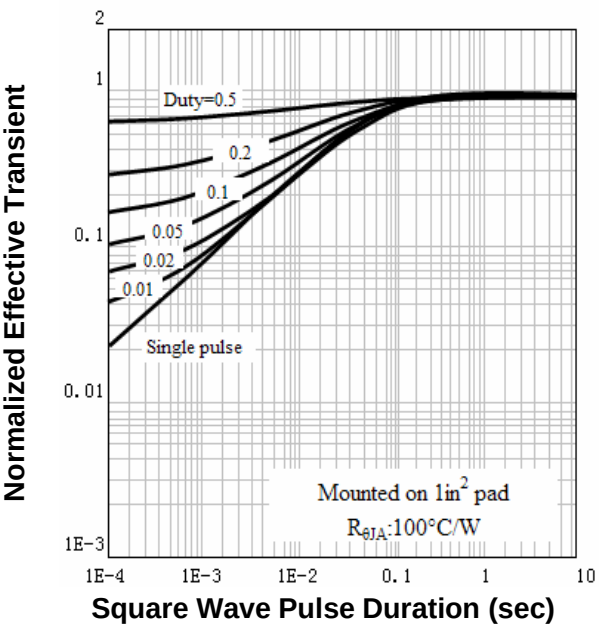
Drain Current



Safe Operation Area

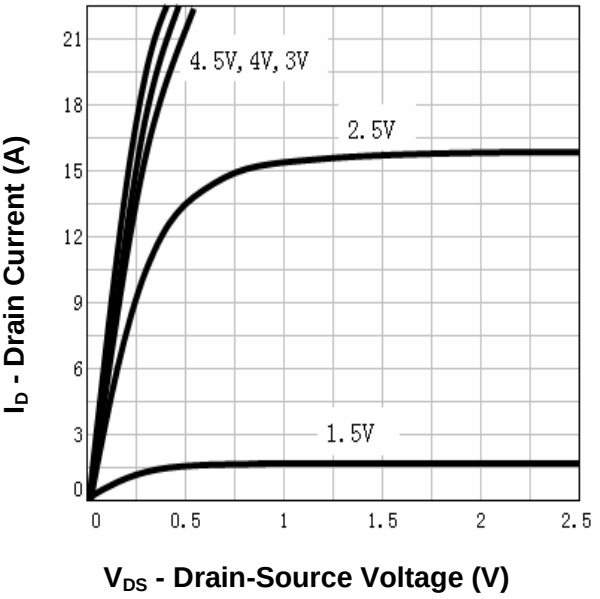


Thermal Transient Impedance

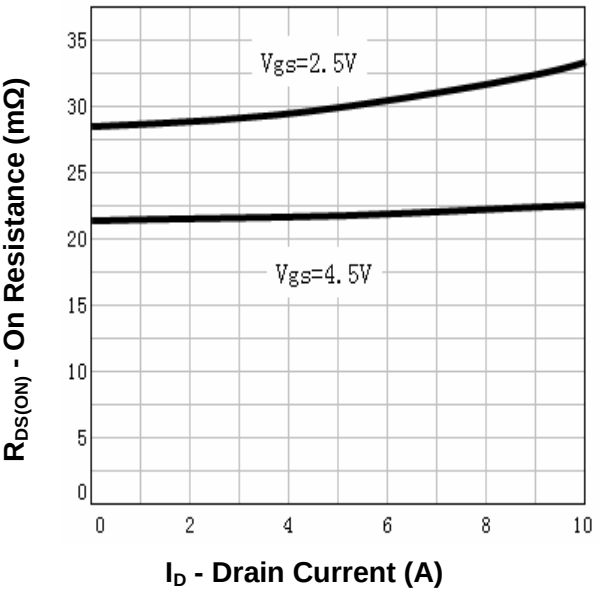


Typical Characteristics

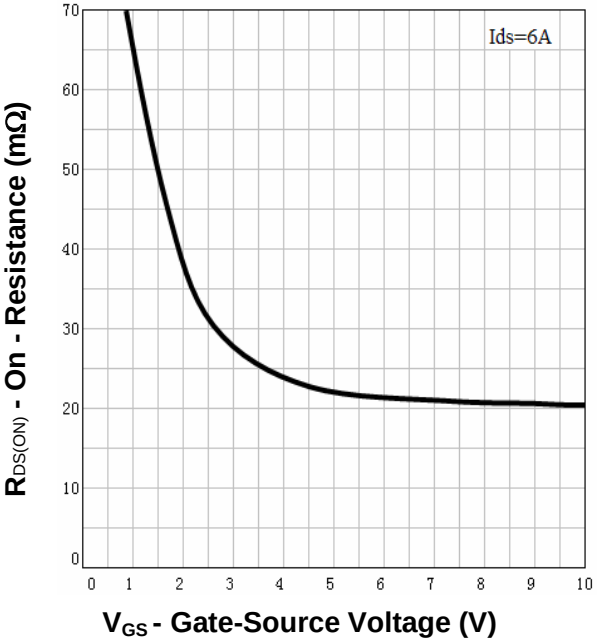
Output Characteristics



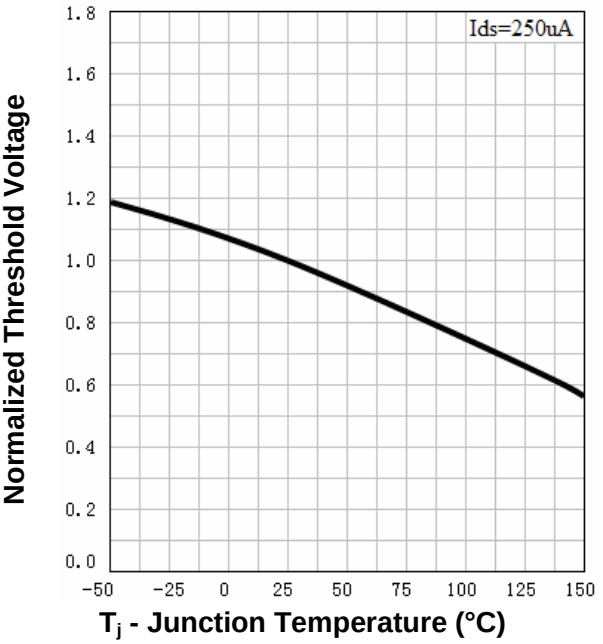
Drain-Source On Resistance



Drain-Source On Resistance

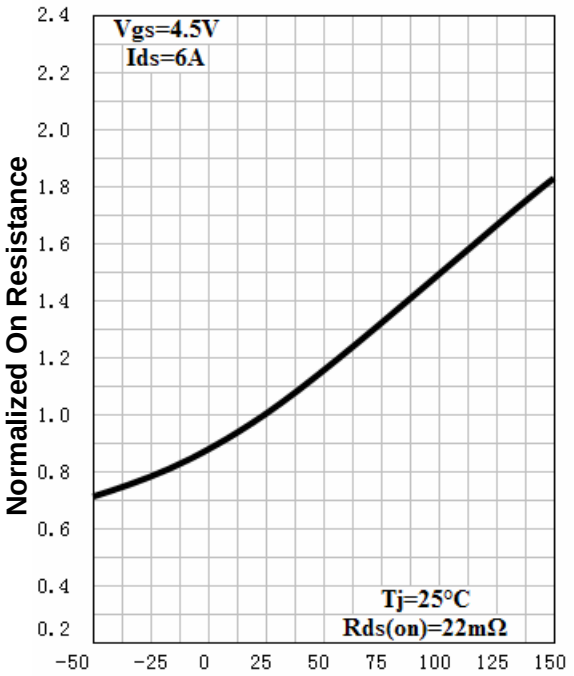


Gate Threshold Voltage

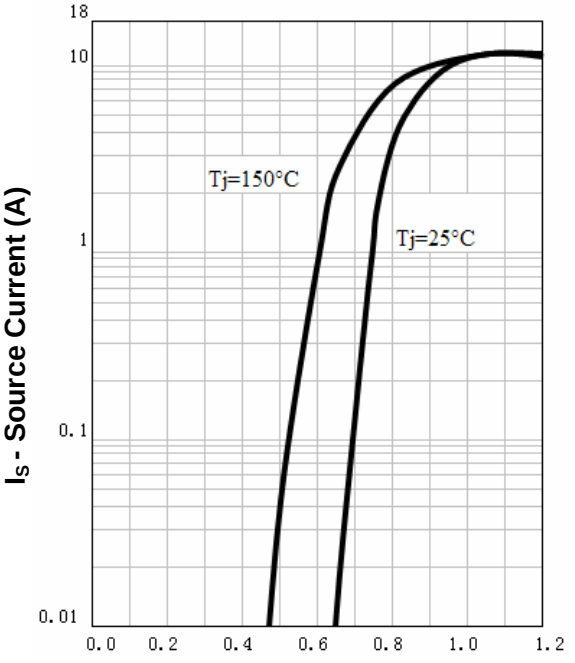


Typical Characteristics

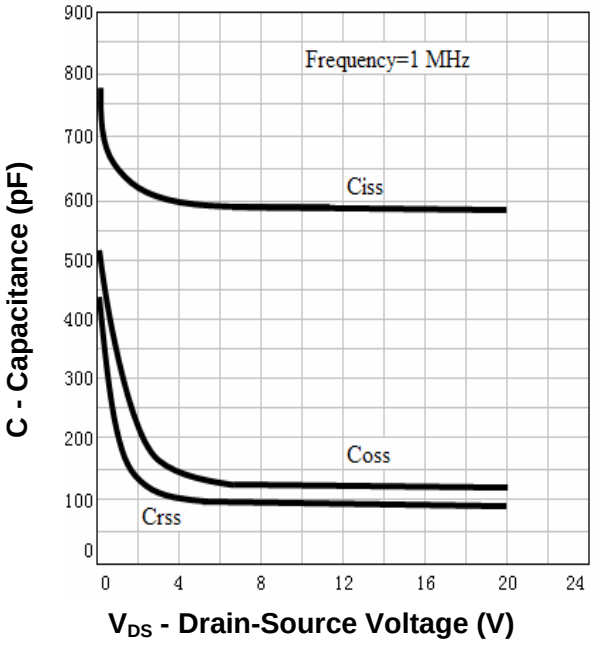
Drain-Source On Resistance



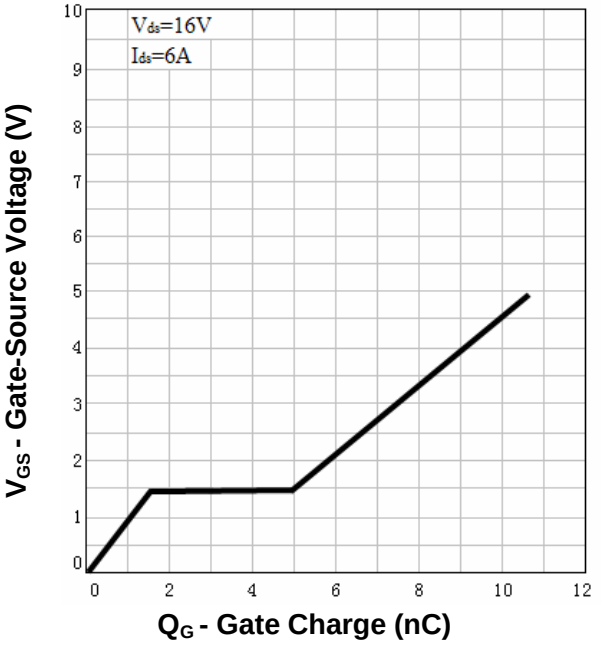
Source-Drain Diode Forward



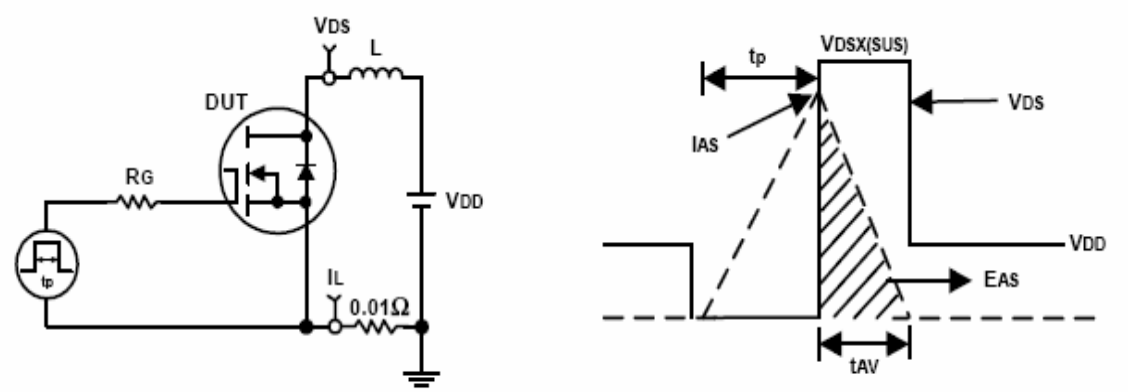
Capacitance



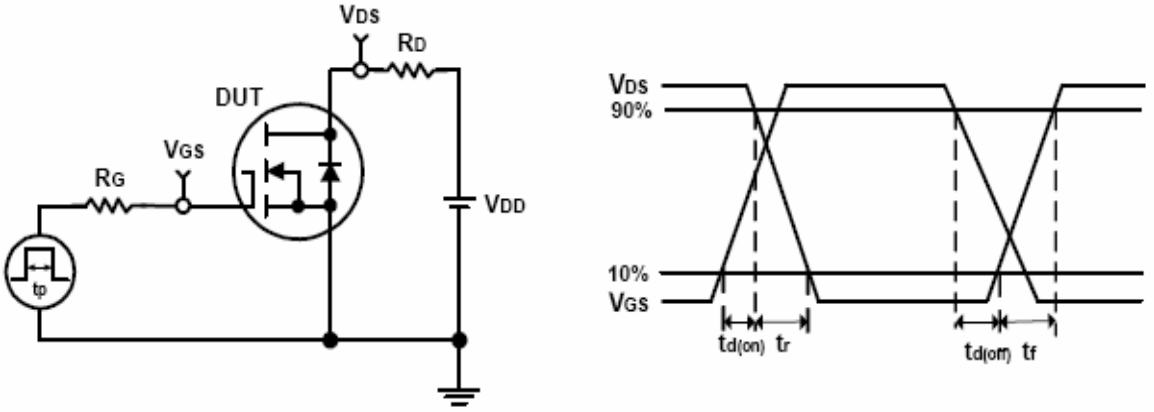
Gate Charge



Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



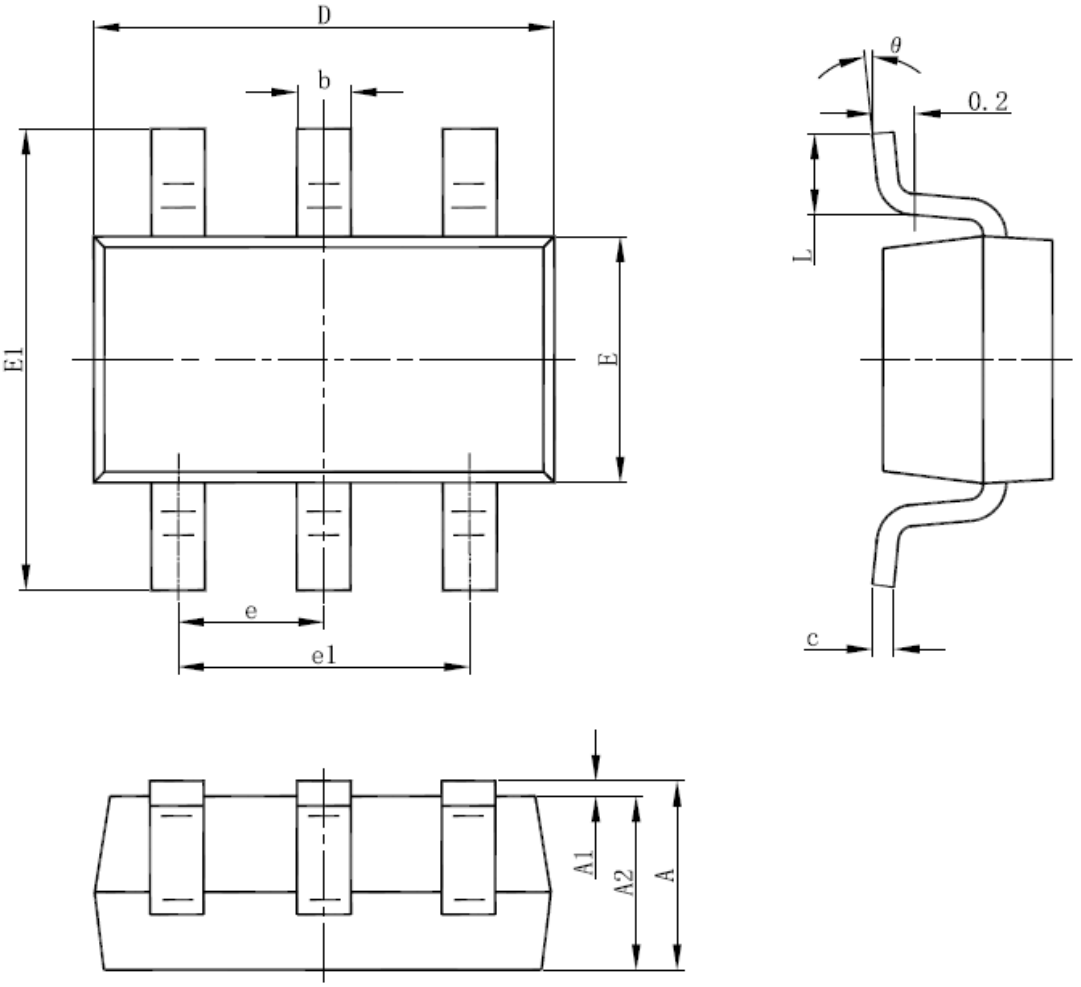
Ordering and Marking Information

Device	Marking①	Package	Packaging	Quantity	Reel Size	Tape width
RU8205C6	4XYWW	SOT-23-6	Tape&Reel	3000	7''	8mm

① The following characters could be different and means:
X =Assembly site code
Y =Year
WW =Work Week

Package Information

SOT-23-6



SYMBOL	MM		INCH		SYMBOL	MM		INCH	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049	E	1.500	1.700	0.059	0.067
A1	0.000	0.100	0.000	0.004	E1	2.650	2.950	0.104	0.116
A2	1.050	1.150	0.041	0.045	e	0.950(BSC)		0.037(BSC)	
b	0.300	0.500	0.012	0.020	e1	1.800	2.000	0.071	0.079
c	0.100	0.200	0.004	0.008	L	0.300	0.600	0.012	0.024
D	2.820	3.020	0.111	0.119	θ	0°	8°	0°	8°

ALL DIMENSIONS REFER TO JEDEC STANDARD
DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS

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