

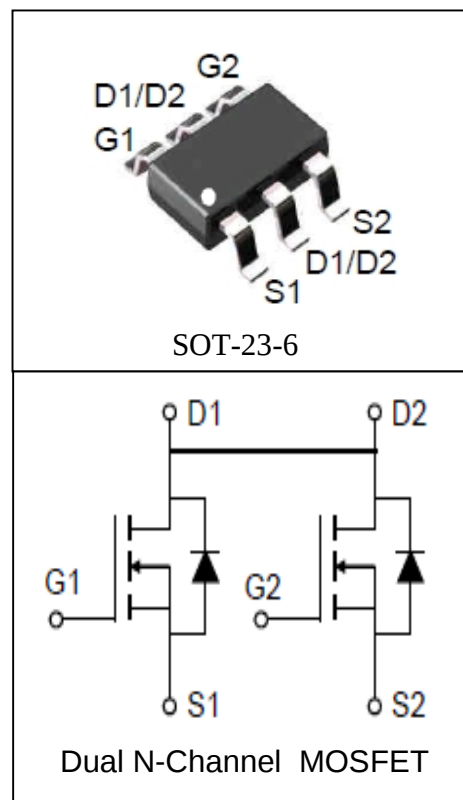
Features

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

Applications

- Power Management

Pin Description



Absolute Maximum Ratings

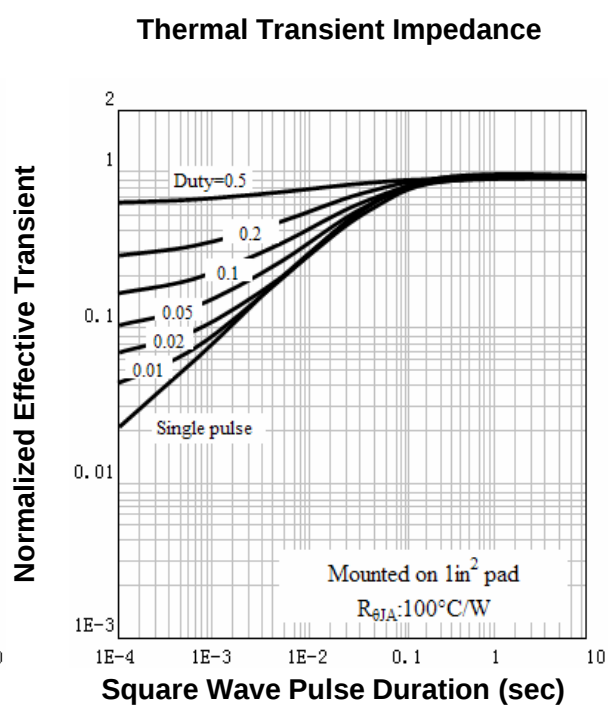
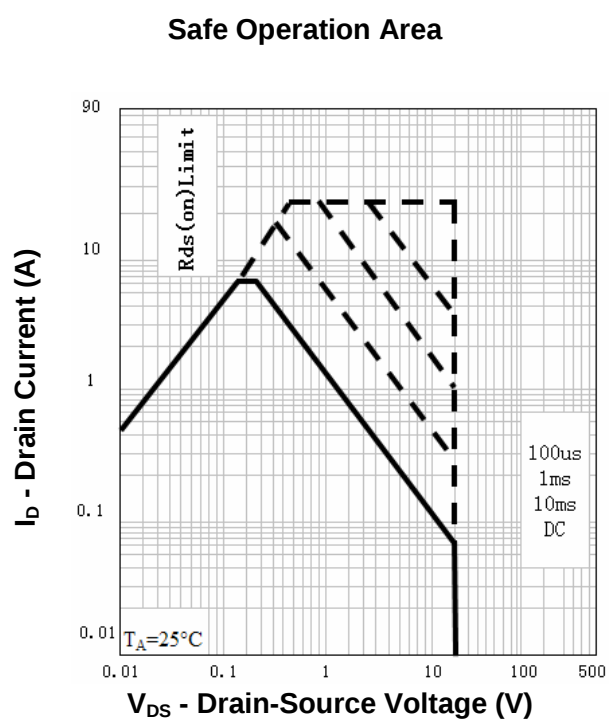
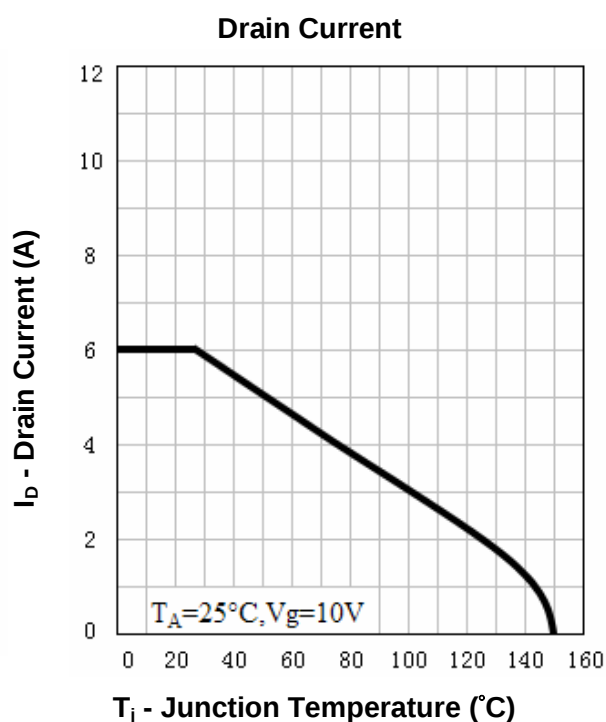
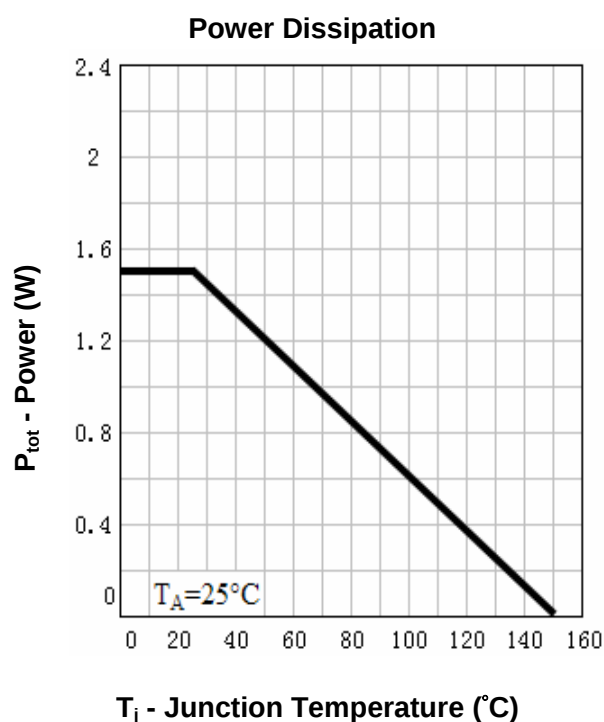
Symbol	Parameter		Rating	Unit
Common Ratings (T _A =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		20	V
V _{GSS}	Gate-Source Voltage		±12	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _A =25°C	1.7	A
Mounted on Large Heat Sink				
I _{DP}	300μs Pulse Drain Current Tested	T _A =25°C	24 ^①	A
I _D	Continuous Drain Current(V _{GS} =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 _{θJA} ^②	Thermal Resistance-Junction to Ambient		100	°C/W

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ 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		

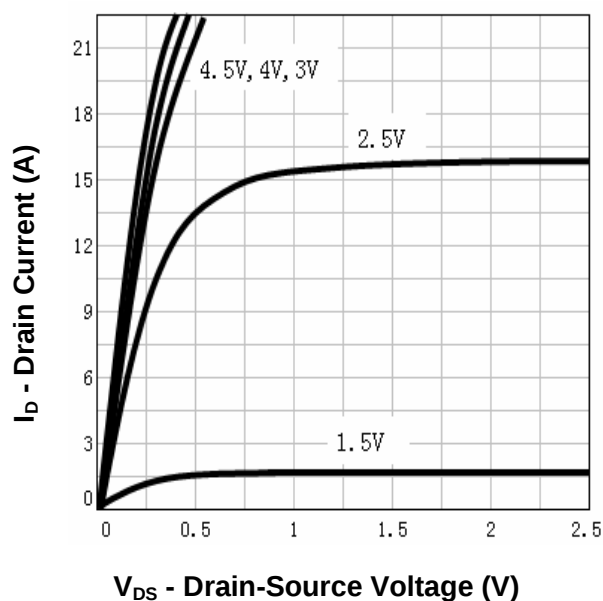
- Notes: ① Pulse width limited by safe operating area.
 ② When mounted on 1 inch square copper board, $t \leq 10\text{sec}$.
 ③ Pulse test ; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 ④ Guaranteed by design, not subject to production testing.

Typical Characteristics

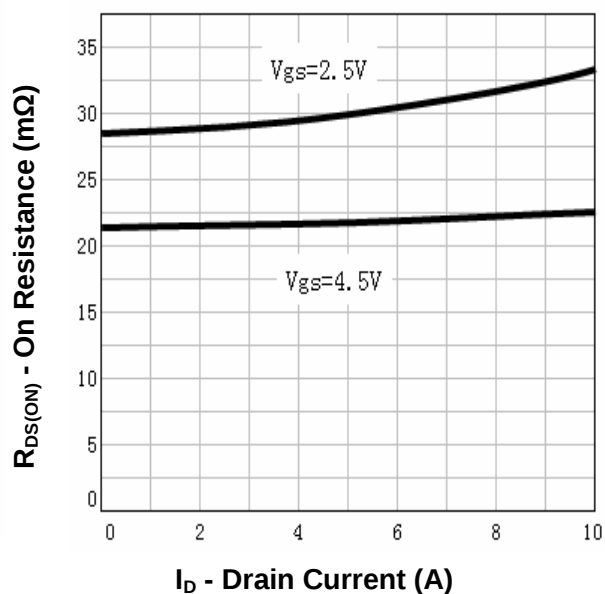


Typical Characteristics

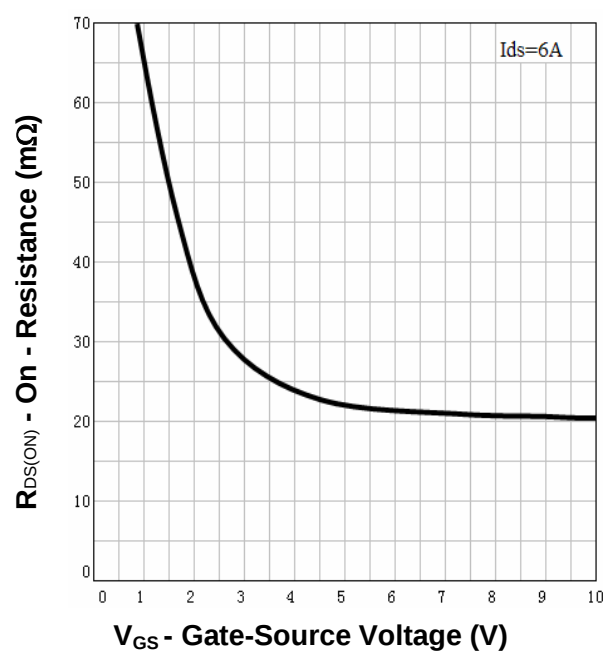
Output Characteristics



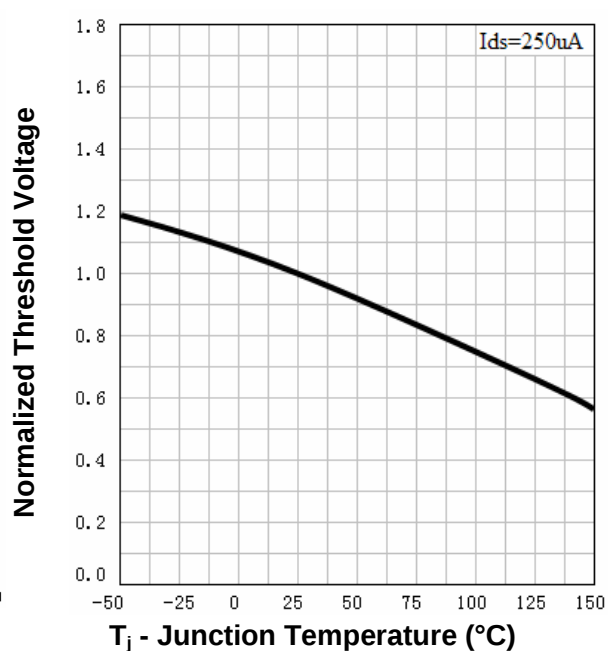
Drain-Source On Resistance



Drain-Source On Resistance

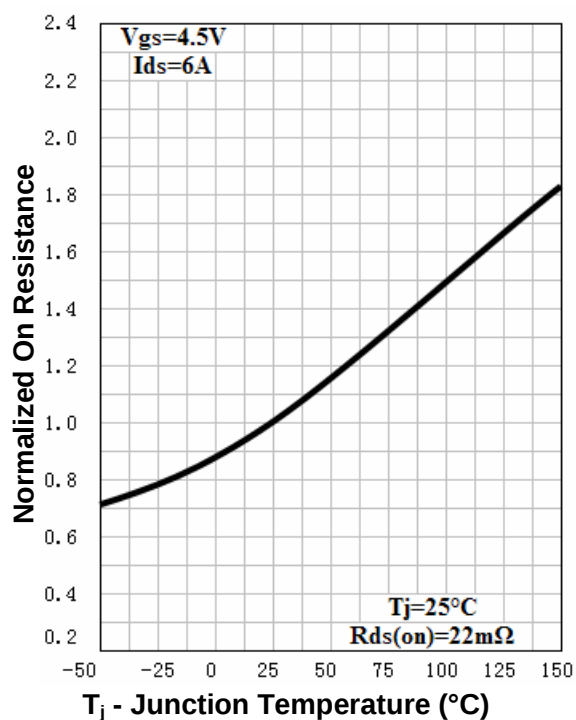


Gate Threshold Voltage

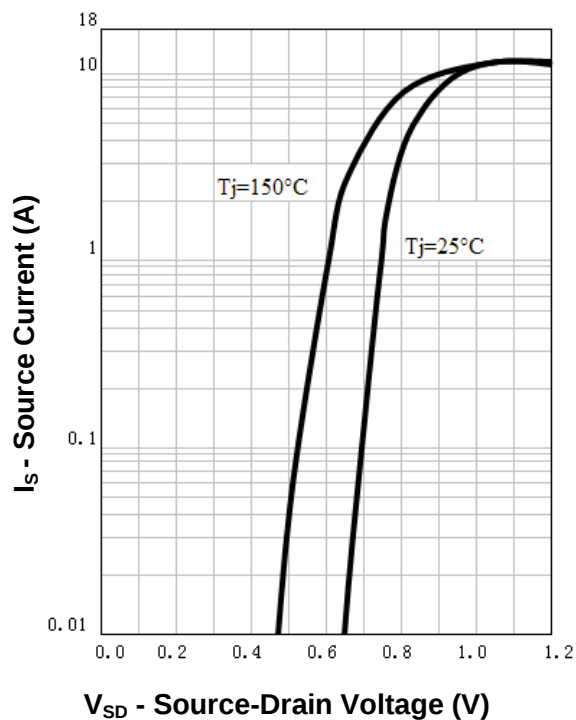


Typical Characteristics

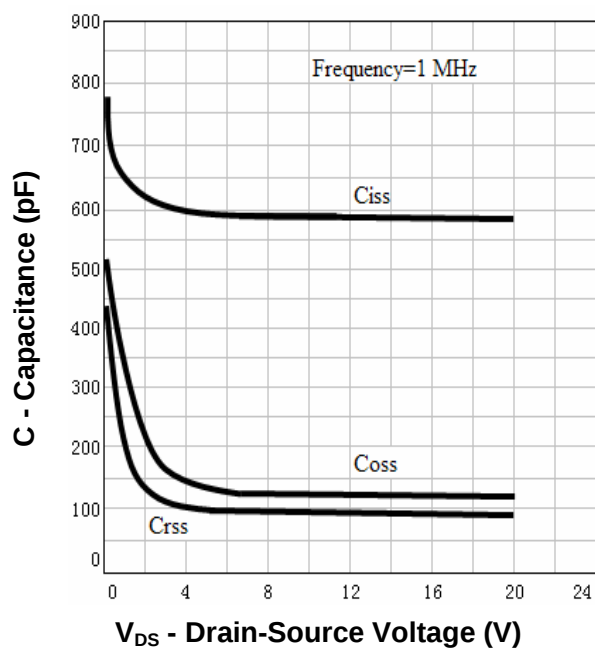
Drain-Source On Resistance



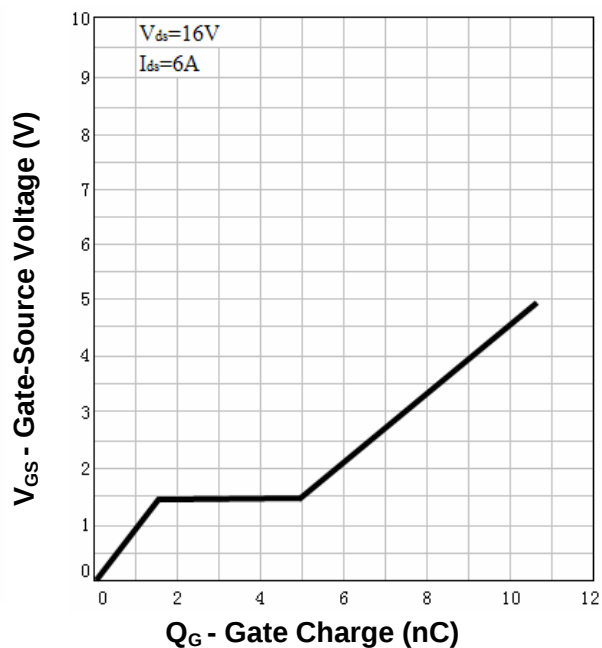
Source-Drain Diode Forward



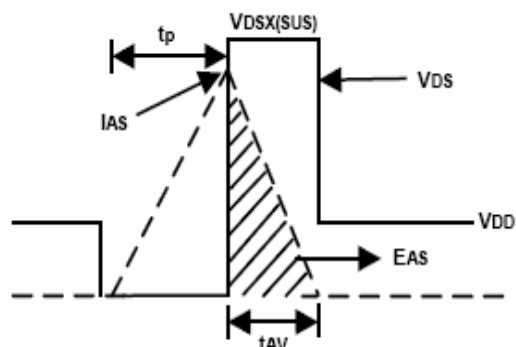
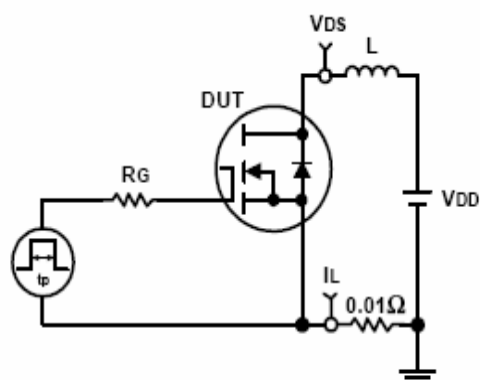
Capacitance



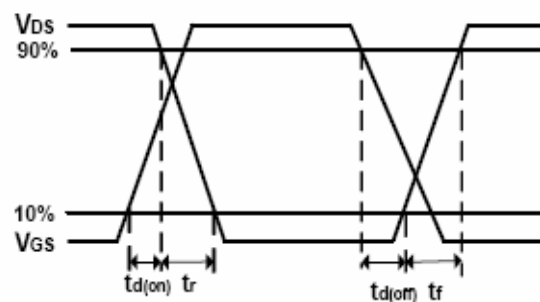
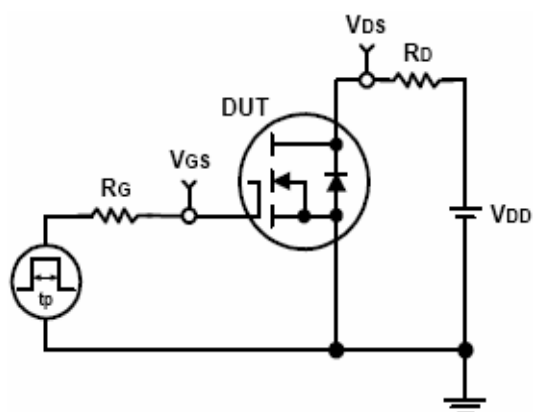
Gate Charge



Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Ordering and Marking Information

Device	Marking ^①	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:

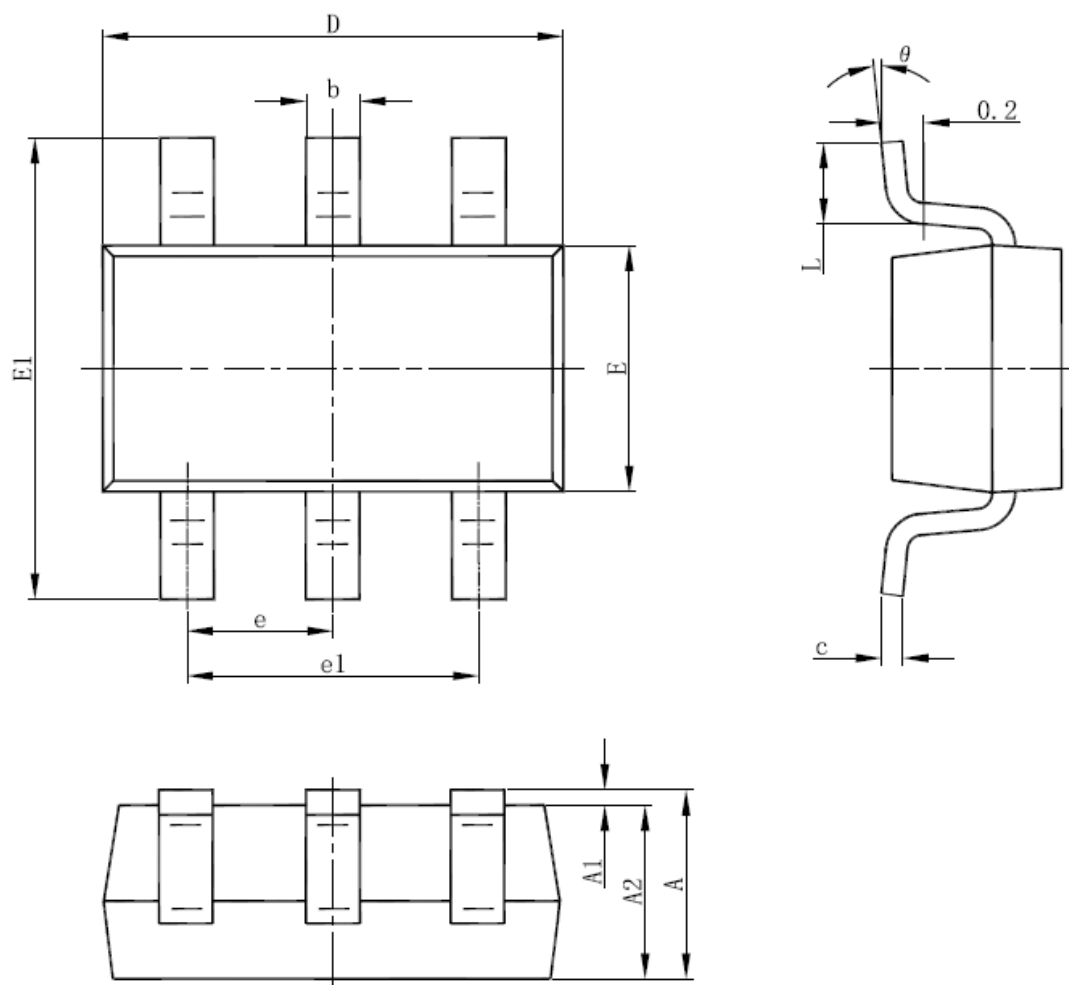
X =Assembly site code

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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