RU206G

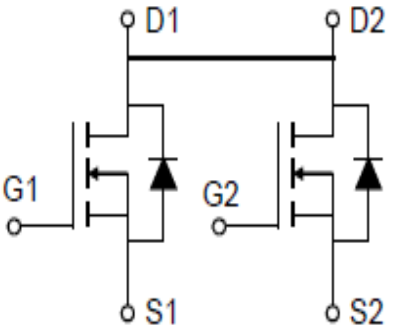
N-Channel Advanced Power MOSFET

Features

- 20V/6A,
  $R_{DS(ON)}$ =18mΩ (Typ.) @ V_{GS}=4.5V
  $R_{DS(ON)}$ =24mΩ (Typ.) @ V_{GS}=2.5V
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free and Green Available

Pin Description

TSSOP-8



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	1.5	W
		T_A=70°C	0.96	
$R_{\theta JA}$②	Thermal Resistance-Junction to Ambient		83.5	°C/W

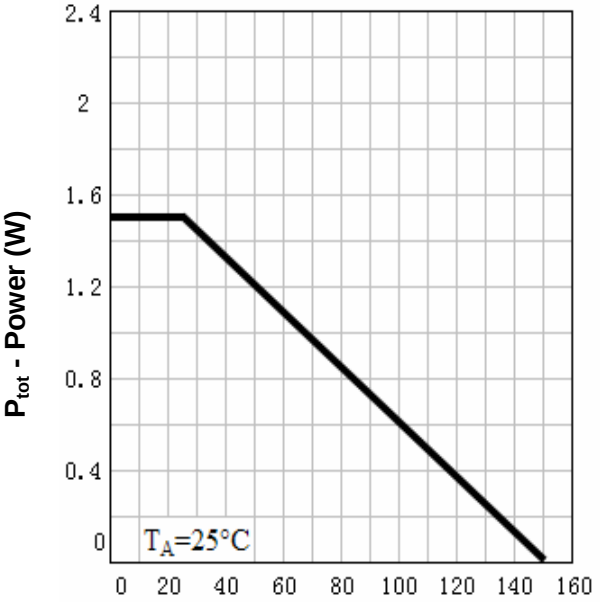
Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU206G			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	0.8	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		18	21	mΩ
		V_{GS}=2.5V, I_{DS}=5A		24	32	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			13		
$t_{d(OFF)}$	Turn-off Delay Time			35		
t_f	Turn-off Fall Time			12		
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		

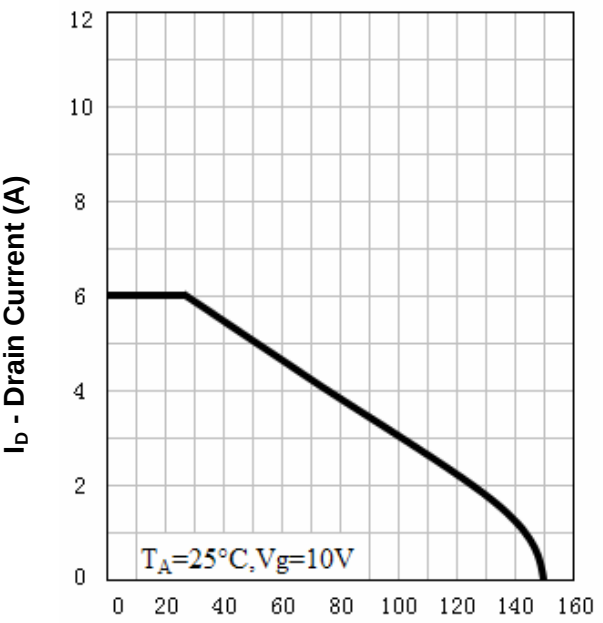
Notes: ①Pulse width limited by safe operating area.
②When mounted on 1 inch square copper board, t ≤10sec.
③Pulse test ; Pulse width≤300μs, duty cycle≤2%.
④Guaranteed by design, not subject to production testing.

Typical Characteristics

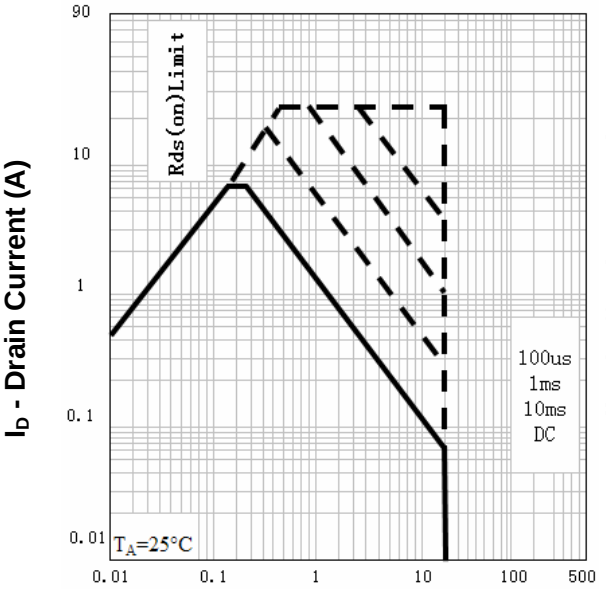
Power Dissipation



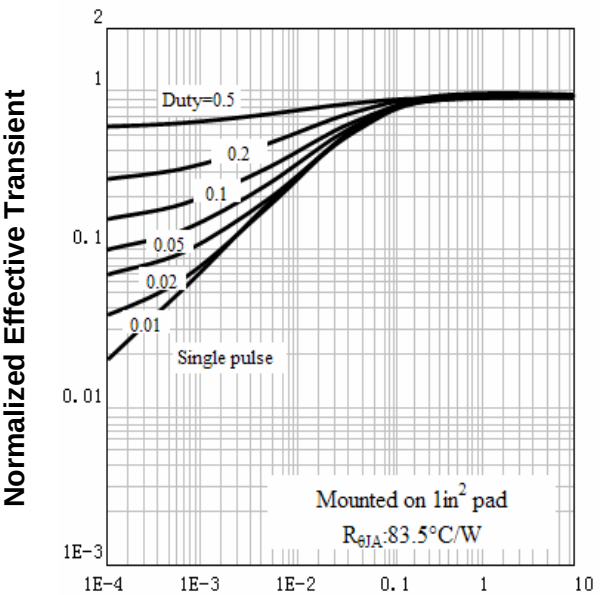
Drain Current



Safe Operation Area

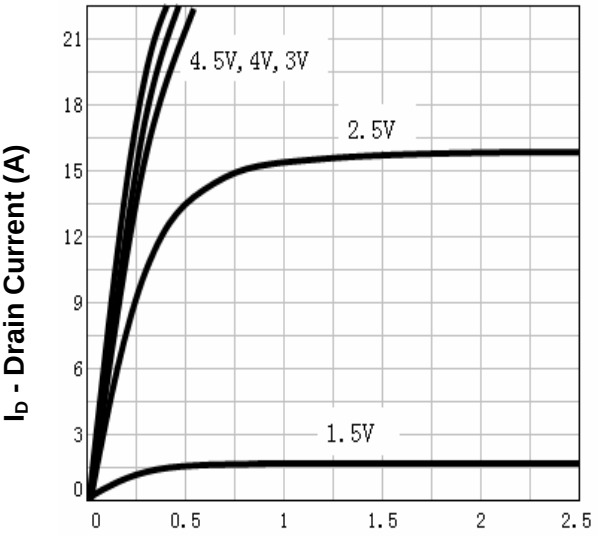


Thermal Transient Impedance

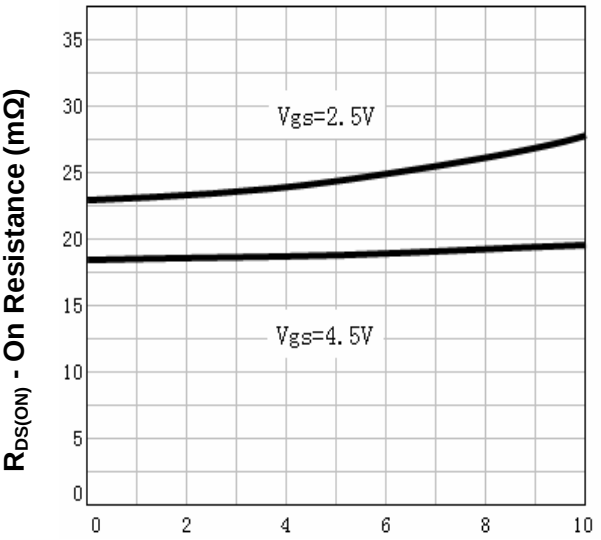


Typical Characteristics

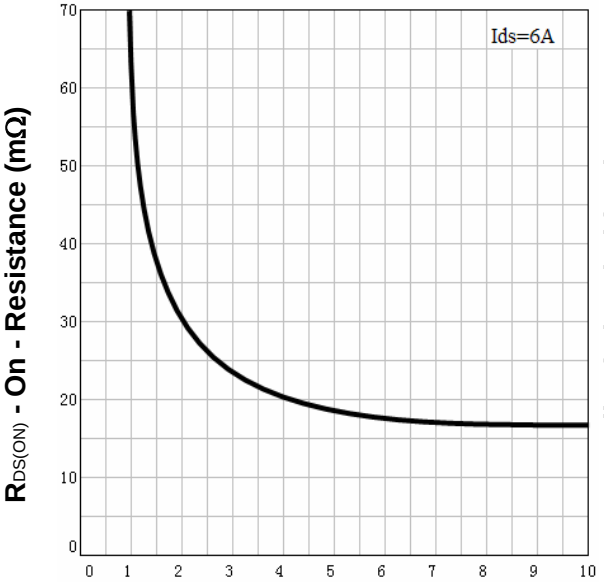
Output Characteristics



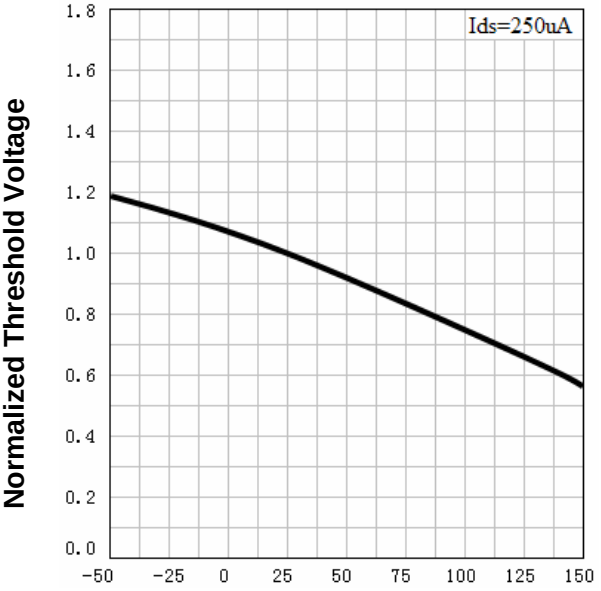
Drain-Source On Resistance



Drain-Source On Resistance

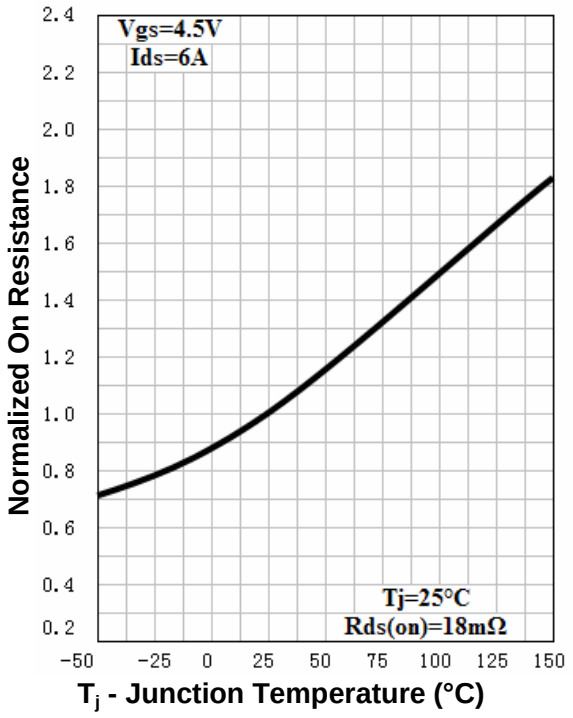


Gate Threshold Voltage

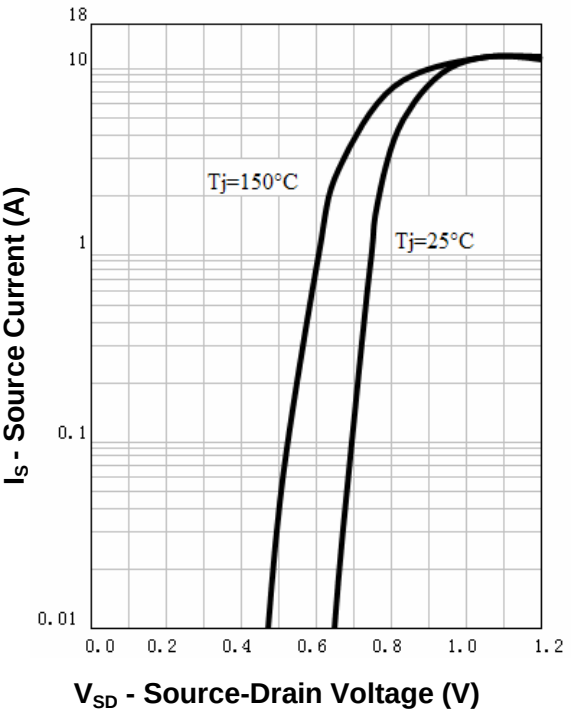


Typical Characteristics

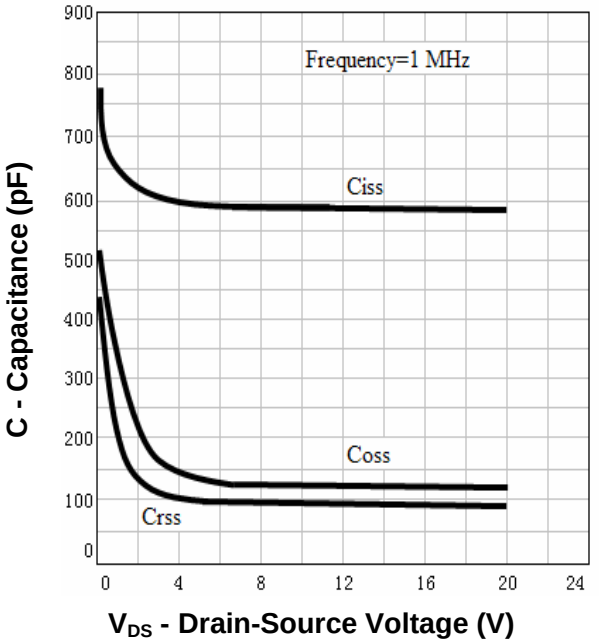
Drain-Source On Resistance



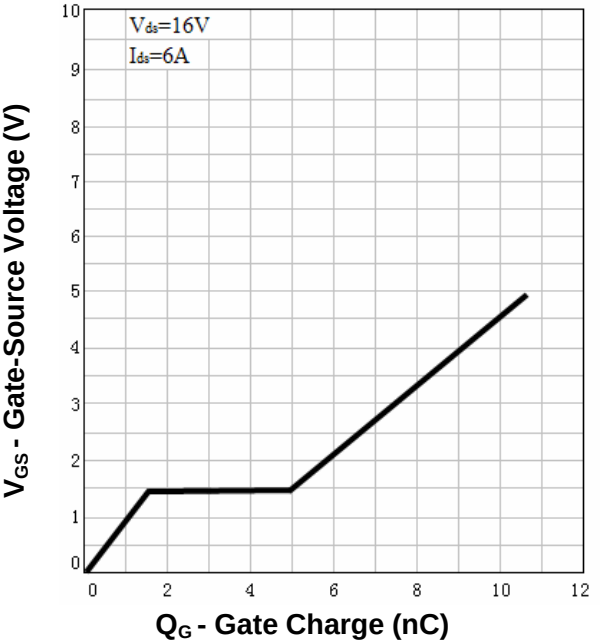
Source-Drain Diode Forward



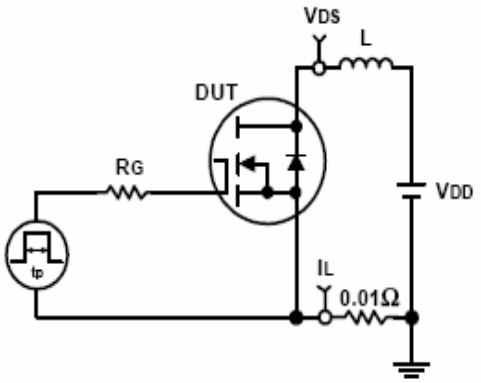
Capacitance

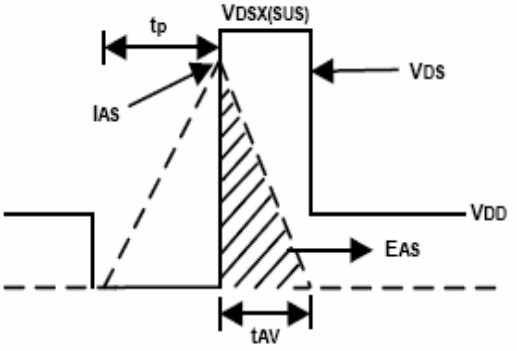


Gate Charge

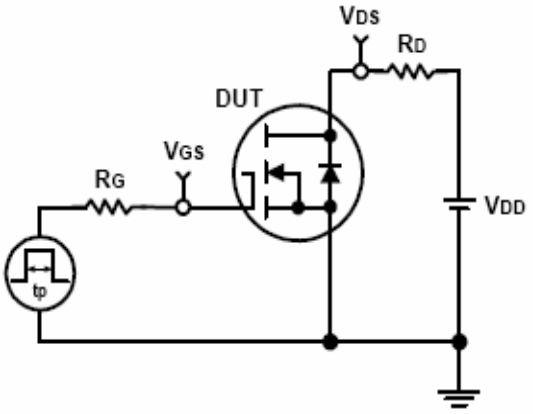


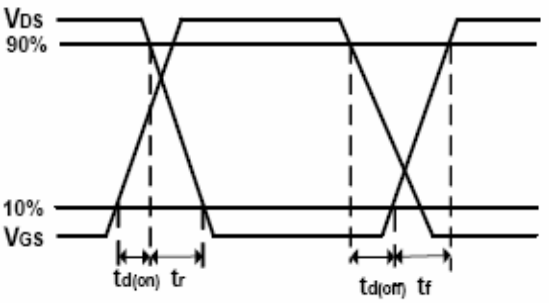
Avalanche Test Circuit and Waveforms





Switching Time Test Circuit and Waveforms



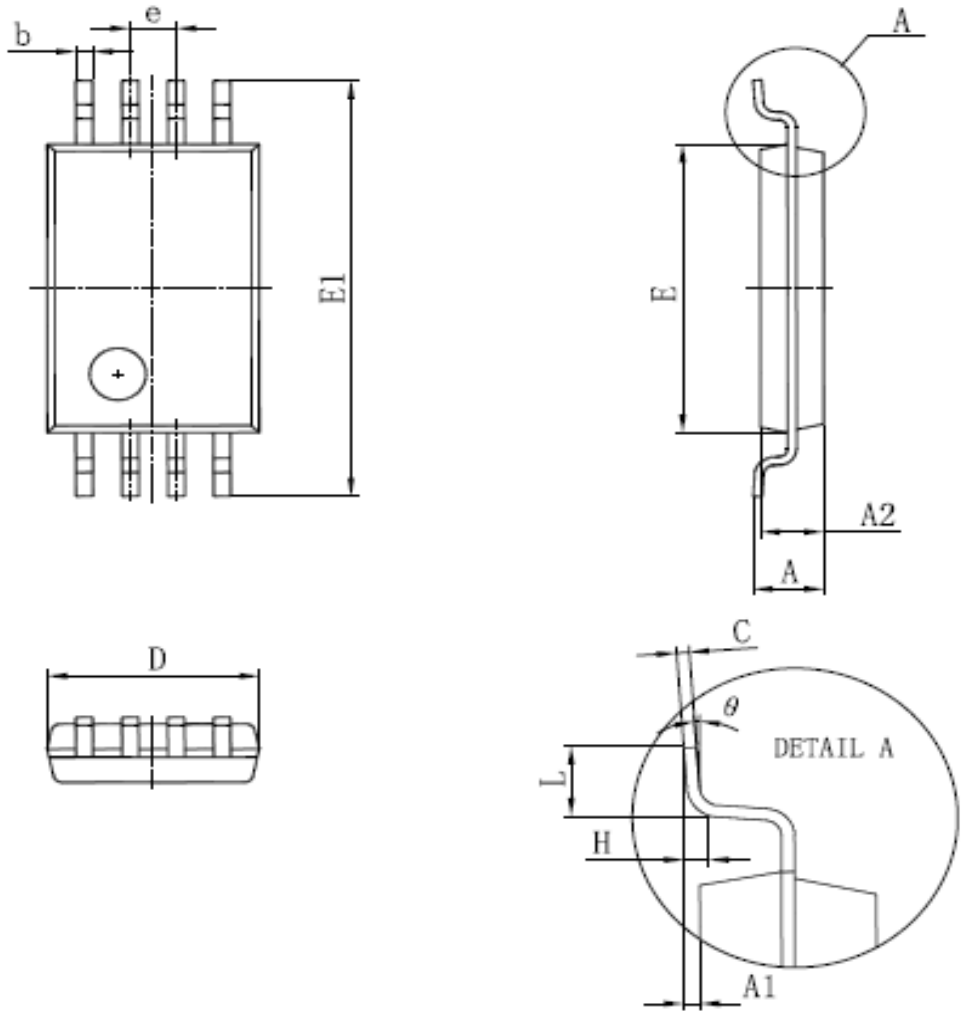


Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU206G	RU206G	TSSOP8	Tape&Reel	3000	13''	12mm

Package Information

TSSOP-8



SYMBOL	MM		INCH		SYMBOL	MM		INCH	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX
D	2.900	3.100	0.114	0.122	A2	0.800	1.050	0.031	0.041
E	4.300	4.500	0.169	0.177	A1	0.050	0.150	0.002	0.006
b	0.190	0.300	0.007	0.012	e	0.65 (BSC)		0.026 (BSC(	
c	0.090	0.200	0.004	0.008	L	0.500	0.700	0.020	0.028
E1	6.250	6.550	0.246	0.258	H	0.25(TYP)		0.01(TYP)	
A		1.200		0.047	θ	0°	8°	0°	8°

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

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