



YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

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企业微信二维码



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Product Summary

Device	BV _{DSS}	R _{DS(ON)} max	I _D max T _A = +25°C
N-Channel	30V	0.4Ω @ V _{GS} = 10V	0.8A
		0.7Ω @ V _{GS} = 4.5V	0.57A

Features and Benefits


- Dual N-Channel MOSFET
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- ESD Protected Gate

Description and Applications

This MOSFET is designed to minimize the on-state resistance (R_{DS(ON)}) yet maintain superior switching performance, making it ideal for high-efficiency power management applications.

- Motor Control
- Power Management Functions
- DC-DC Converters

Mechanical Data

- Case: SOT363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See Diagram
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Weight: 0.027 grams (Approximate)

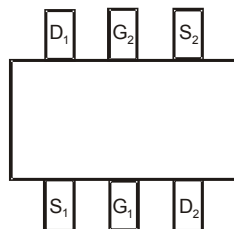
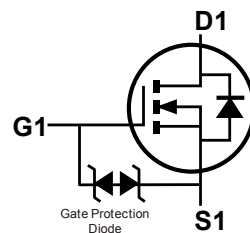


ESD PROTECTED

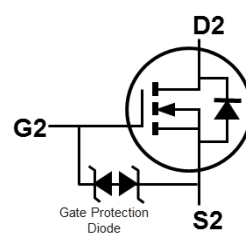
SOT363



Top View


 Top View
Pin Out


Q1 N-Channel



Q2 N-Channel

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V_{GSS}	± 20	V
Continuous Drain Current (Note 6) $V_{GS} = 10\text{V}$	Steady State	$T_A = +25^\circ\text{C}$	I_D	0.8	A
		$T_A = +70^\circ\text{C}$		0.6	
Maximum Continuous Body Diode Forward Current (Note 6)			I_S	0.4	A
Pulsed Drain Current (10 μs Pulse, Duty Cycle = 1%)			I_{DM}	4	A

Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Total Power Dissipation (Note 5)			P_D	0.29	W
Thermal Resistance, Junction to Ambient (Note 5)		Steady State	$R_{\theta JA}$	433	$^\circ\text{C/W}$
Total Power Dissipation (Note 6)			P_D	0.35	W
Thermal Resistance, Junction to Ambient (Note 6)		Steady State	$R_{\theta JA}$	360	$^\circ\text{C/W}$
Operating and Storage Temperature Range			T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	—	—	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1.0	μA	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	0.8	1.2	1.6	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	0.2	0.4	Ω	$V_{GS} = 10\text{V}, I_D = 0.59\text{A}$
		—	0.3	0.7		$V_{GS} = 4.5\text{V}, I_D = 0.2\text{A}$
Diode Forward Voltage	V_{SD}	—	0.7	1.2	V	$V_{GS} = 0\text{V}, I_S = 10\text{mA}$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{ISS}	—	50	—	pF	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	C_{OSS}	—	12	—	pF	
Reverse Transfer Capacitance	C_{RSS}	—	10	—	pF	
Gate Resistance	R_g	—	58	—	Ω	$V_{DS} = V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Total Gate Charge ($V_{GS} = 4.5\text{V}$)	Q_g	—	0.5	—	nC	$V_{DS} = 10\text{V}, V_{GS} = 10\text{V}, I_D = 250\text{mA}$
Total Gate Charge ($V_{GS} = 10\text{V}$)	Q_g	—	1.2	—	nC	
Gate-Source Charge	Q_{GS}	—	0.2	—	nC	
Gate-Drain Charge	Q_{GD}	—	0.1	—	nC	
Turn-On Delay Time	$t_{D(ON)}$	—	3.5	—	ns	
Turn-On Rise Time	t_R	—	3.3	—	ns	$V_{GS} = 10\text{V}, V_{DS} = 30\text{V}, I_D = 100\text{mA}, R_G = 25\Omega$
Turn-Off Delay Time	$t_{D(OFF)}$	—	16.8	—	ns	
Turn-Off Fall Time	t_F	—	13.8	—	ns	

Notes: 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to product testing.

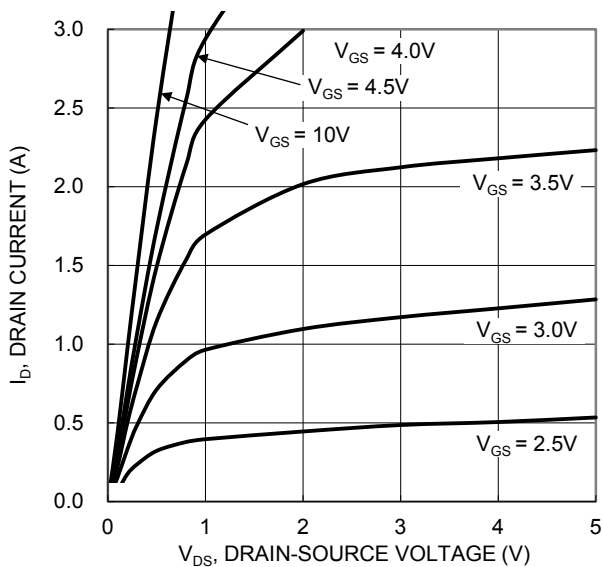


Figure 1. Typical Output Characteristic

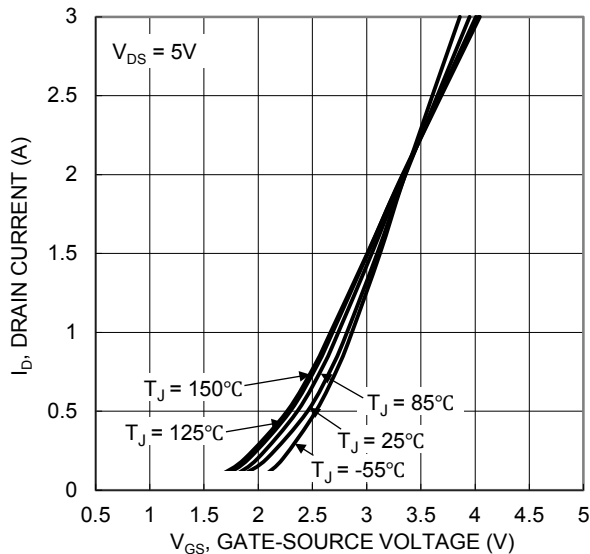


Figure 2. Typical Transfer Characteristic

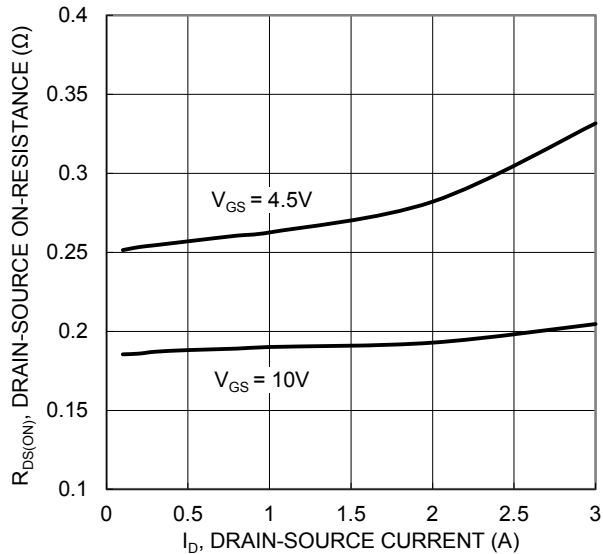


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

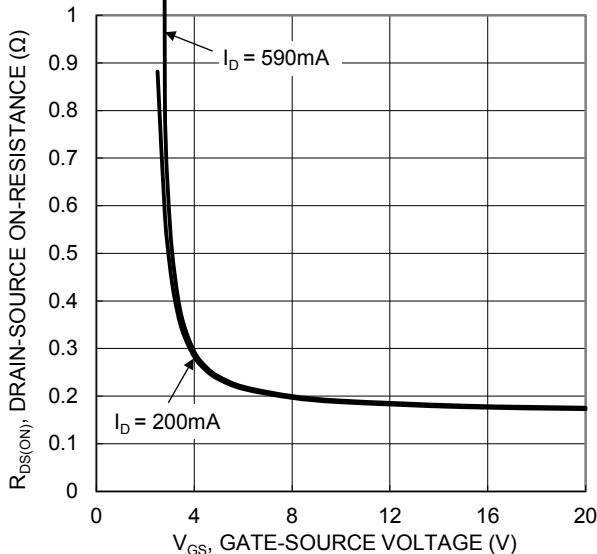


Figure 4. Typical Transfer Characteristic

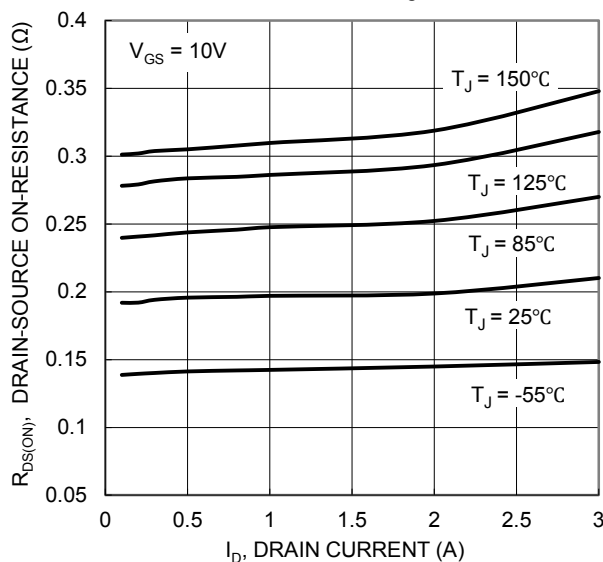


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

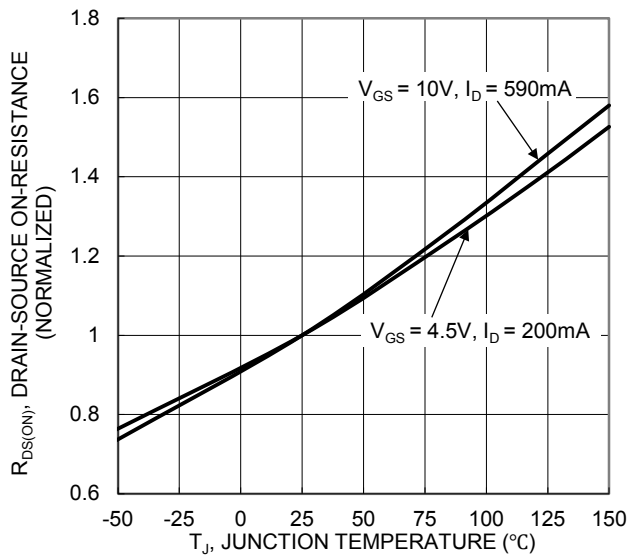
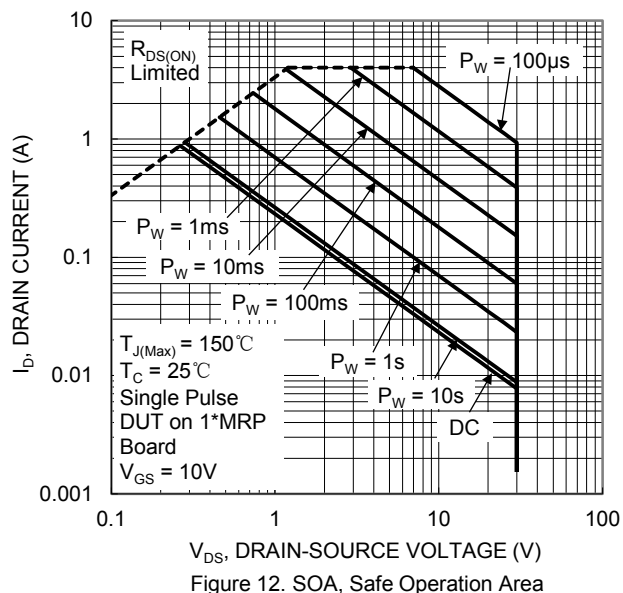
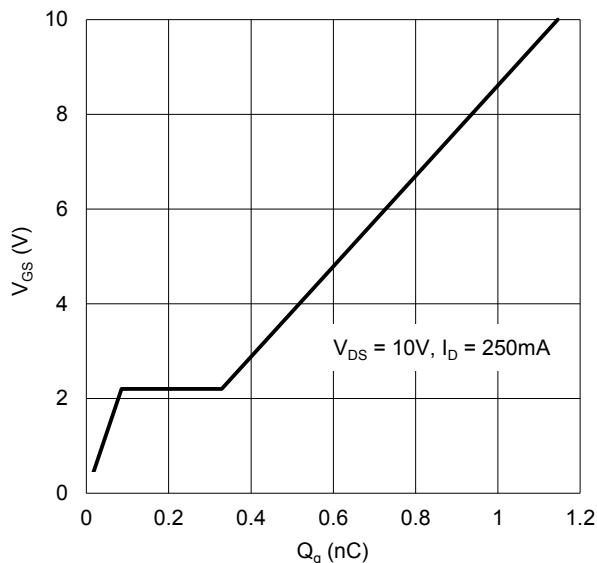
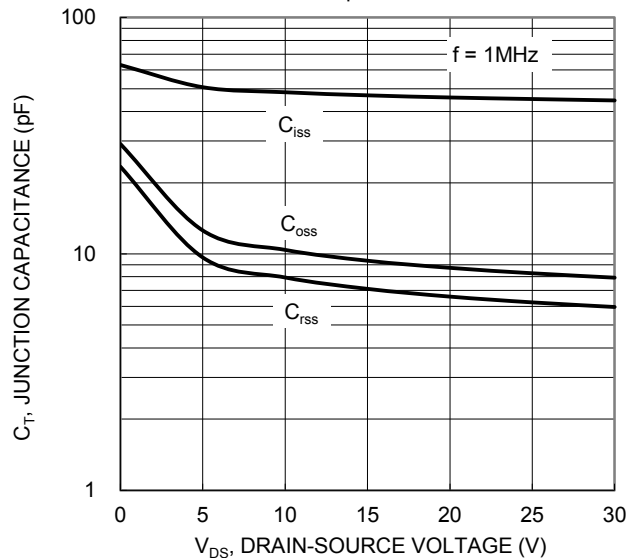
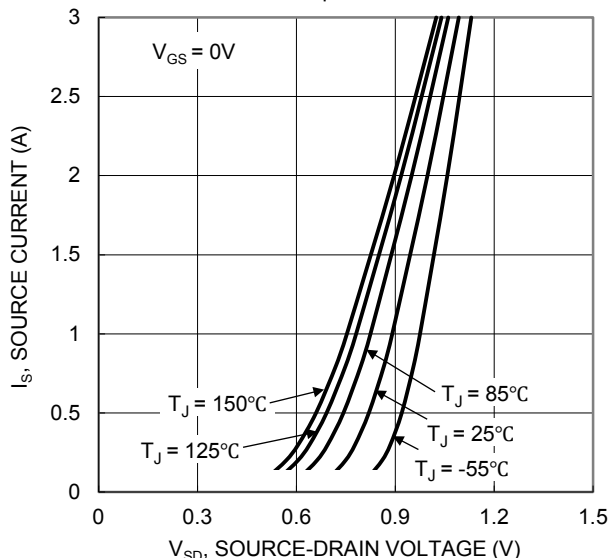
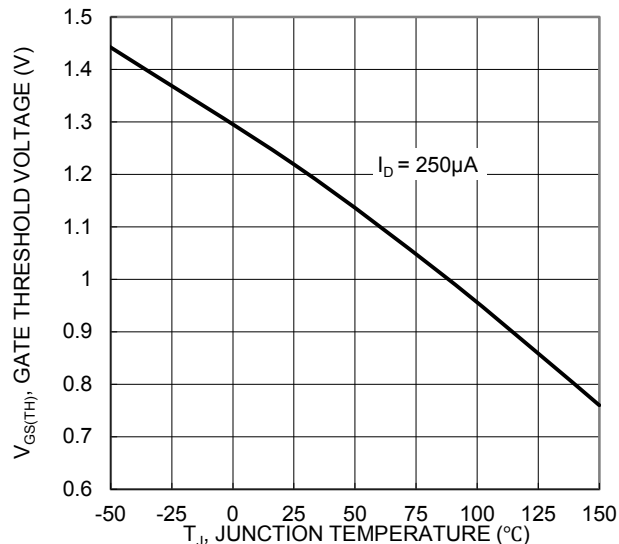
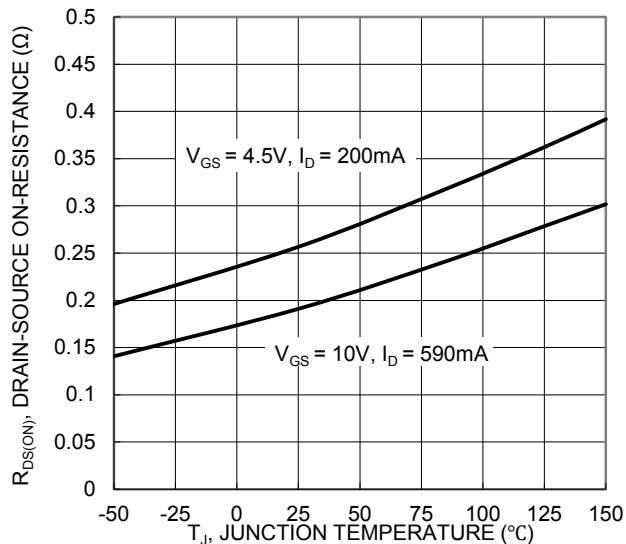


Figure 6. On-Resistance Variation with Junction Temperature



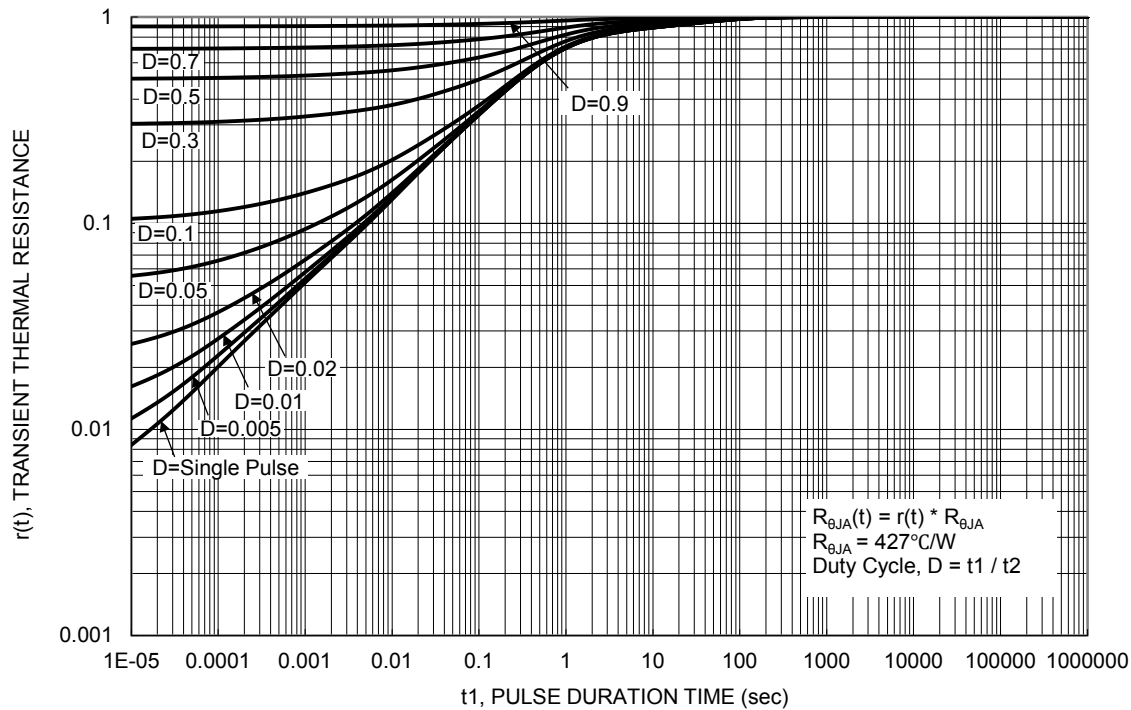
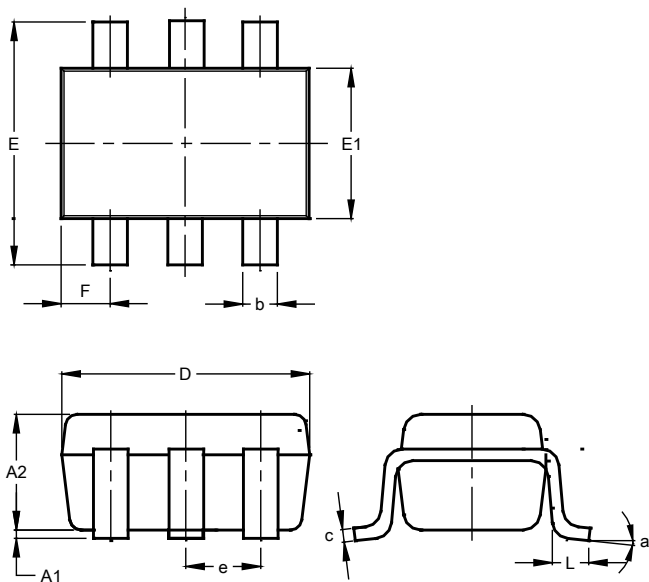


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

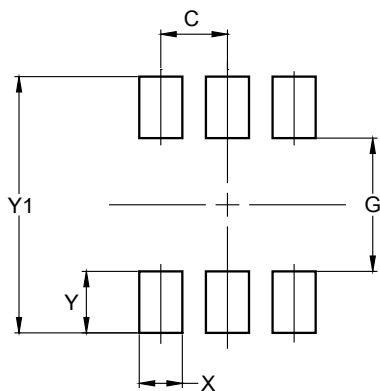
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Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

SOT363



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500