



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

0755-83047638

ysbdt@szyoushang.cn

www.szyoushang.cn



企业微信二维码



企业QQ二维码

Product Summary

BV_{DSS}	$R_{DS(ON)}$ Max	I_D Max $T_A = +25^\circ C$
60V	3.0Ω @ $V_{GS} = 10V$	261mA
	4.0Ω @ $V_{GS} = 4.5V$	226mA

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

Features and Benefits

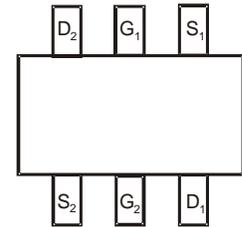
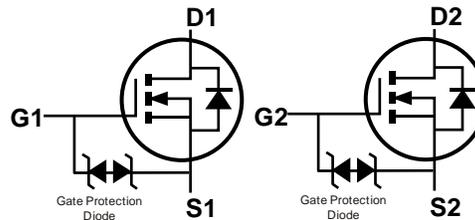
- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage

Mechanical Data

- Package: SOT363
- Package Material: Molded Plastic. "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead-Free Plating). Solderable per MIL-STD-202, Method 208[Ⓔ]
- Terminal Connections: See Diagram
- Weight: 0.006 grams (Approximate)



Top View



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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	60	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	261	mA
		$T_A = +70^\circ\text{C}$		208	
Maximum Continuous Body Diode Forward Current (Note 6)			I_S	261	mA
Pulsed Drain Current (10 μs Pulse, Duty Cycle = 1%)			I_{DM}	1.1	A
Pulsed Source Current (10 μs Pulse, Duty Cycle = 1%)			I_{SM}	1.1	A

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

Characteristic			Symbol	Value	Unit
Total Power Dissipation (Note 5)			P_D	0.33	W
Thermal Resistance, Junction to Ambient (Note 5)		Steady State	$R_{\theta JA}$	379	$^\circ\text{C/W}$
Total Power Dissipation (Note 6)			P_D	0.45	W
Thermal Resistance, Junction to Ambient (Note 6)		Steady State	$R_{\theta JA}$	278	$^\circ\text{C/W}$
Operating and Storage Temperature Range			T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

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}	60	—	—	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	$V_{DS} = 60\text{V}, V_{GS} = 0\text{V}$
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	$V_{GS(TH)}$	1.0	—	2.0	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	1.3	3.0	Ω	$V_{GS} = 10\text{V}, I_D = 200\text{mA}$
		—	1.5	4.0	Ω	$V_{GS} = 4.5\text{V}, I_D = 150\text{mA}$
Diode Forward Voltage	V_{SD}	—	0.8	1.4	V	$V_{GS} = 0\text{V}, I_S = 115\text{mA}$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	41	—	pF	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	4.5	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	2.7	—	pF	
Gate Resistance	R_g	—	224	—	Ω	$f = 1\text{MHz}, V_{GS} = 0\text{V}, V_{DS} = 0\text{V}$
Total Gate Charge ($V_{GS} = 4.5\text{V}$)	Q_g	—	0.51	—	nC	$V_{DS} = 15\text{V},$ $I_D = 200\text{mA}$
Total Gate Charge ($V_{GS} = 10\text{V}$)	Q_g	—	1.04	—	nC	
Gate-Source Charge	Q_{gs}	—	0.16	—	nC	
Gate-Drain Charge	Q_{gd}	—	0.18	—	nC	
Turn-On Delay Time	$t_{D(ON)}$	—	6.9	—	ns	$V_{DD} = 30\text{V}, V_{GS} = 10\text{V},$ $R_G = 150\Omega, I_D = 200\text{mA}$
Turn-On Rise Time	t_R	—	5.8	—	ns	
Turn-Off Delay Time	$t_{D(OFF)}$	—	37.8	—	ns	
Turn-Off Fall Time	t_F	—	14.3	—	ns	
Reverse Recovery Time	t_{RR}	—	19	—	ns	$I_F = 1\text{A}, di/dt = 100\text{A}/\mu\text{s}$
Reverse Recovery Charge	Q_{RR}	—	9	—	nC	$I_F = 1\text{A}, di/dt = 100\text{A}/\mu\text{s}$

- Notes:
- Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 - Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

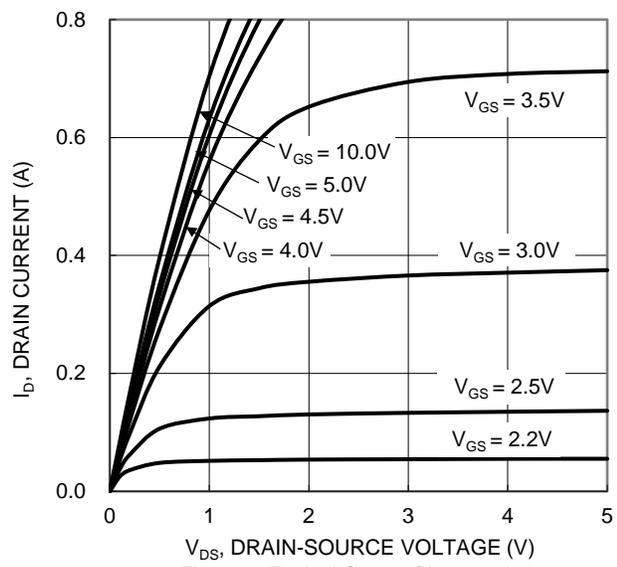


Figure 1. Typical Output Characteristic

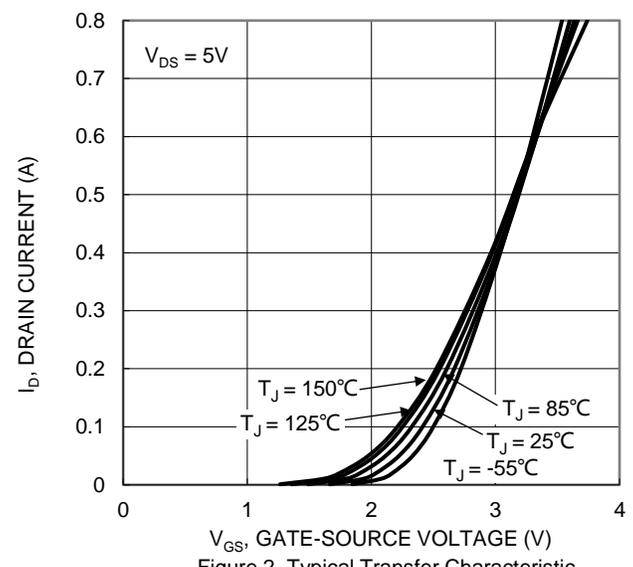


Figure 2. Typical Transfer Characteristic

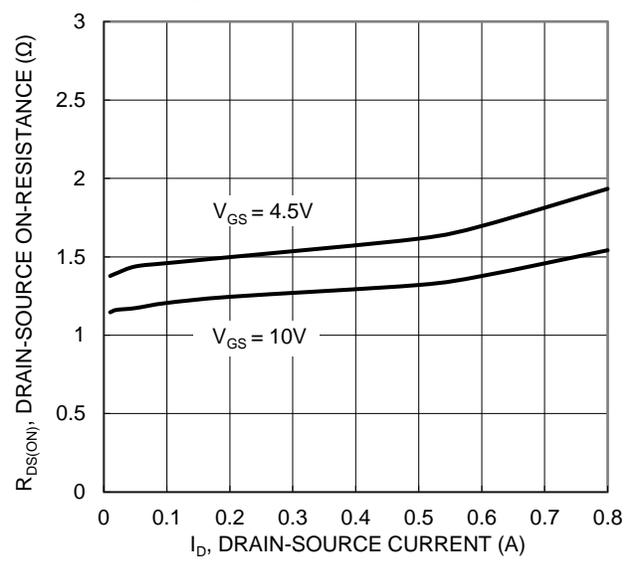


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

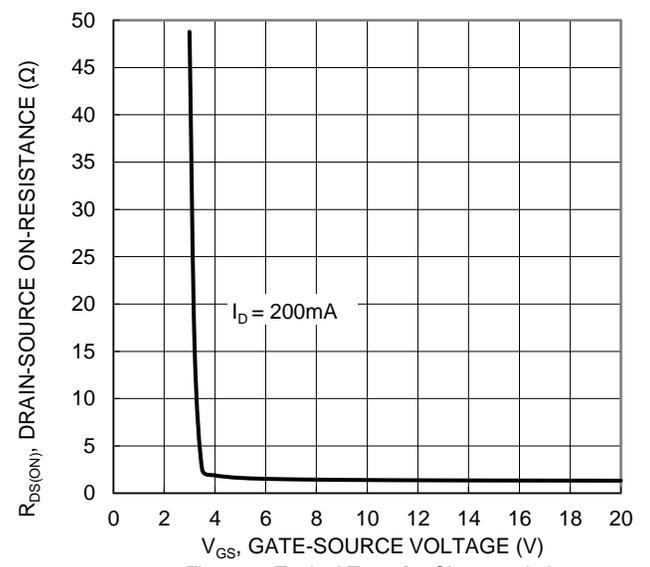


Figure 4. Typical Transfer Characteristic

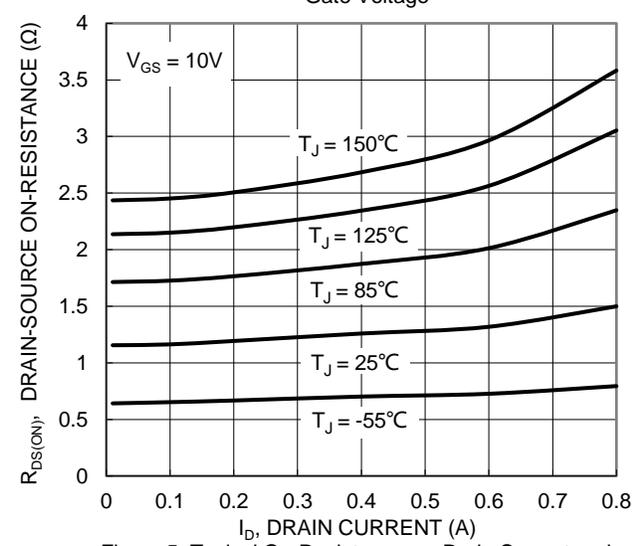


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

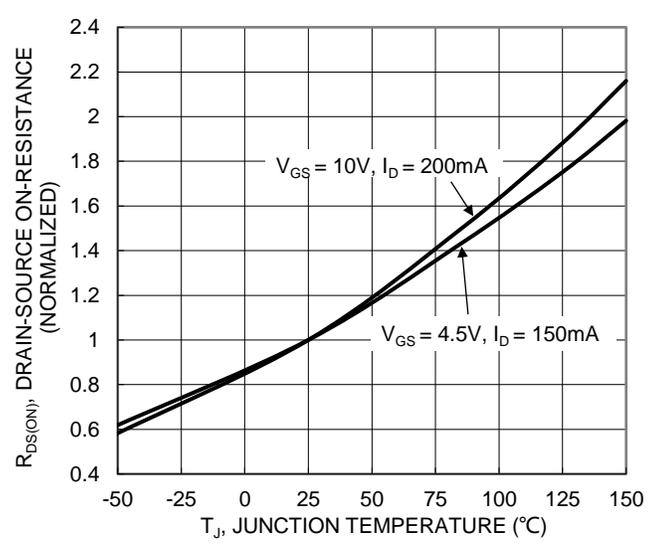


Figure 6. On-Resistance Variation with Junction Temperature

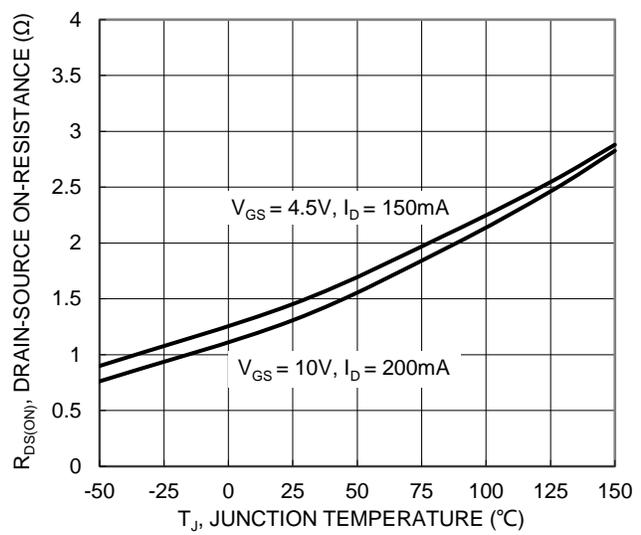


Figure 7. On-Resistance Variation with Junction Temperature

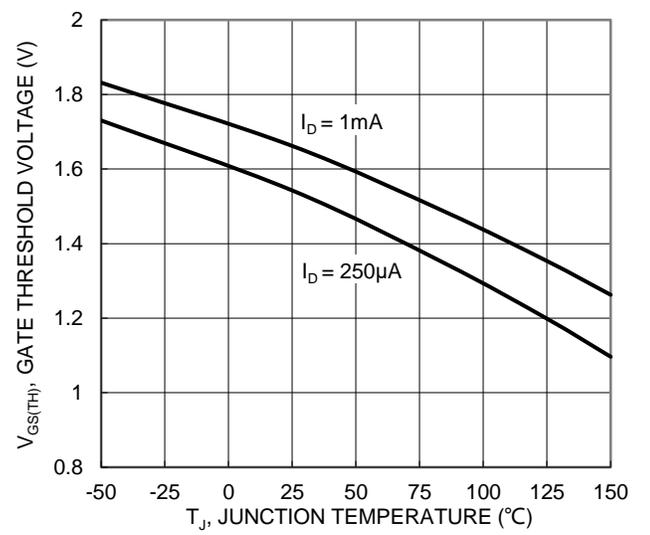


Figure 8. Gate Threshold Variation vs. Junction Temperature

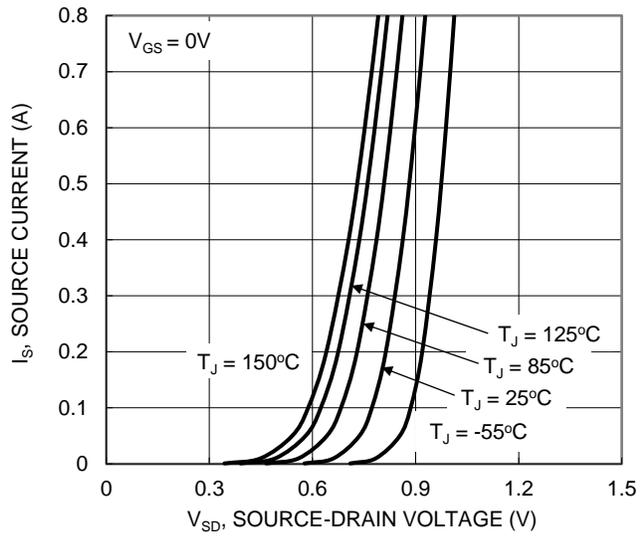


Figure 9. Diode Forward Voltage vs. Current

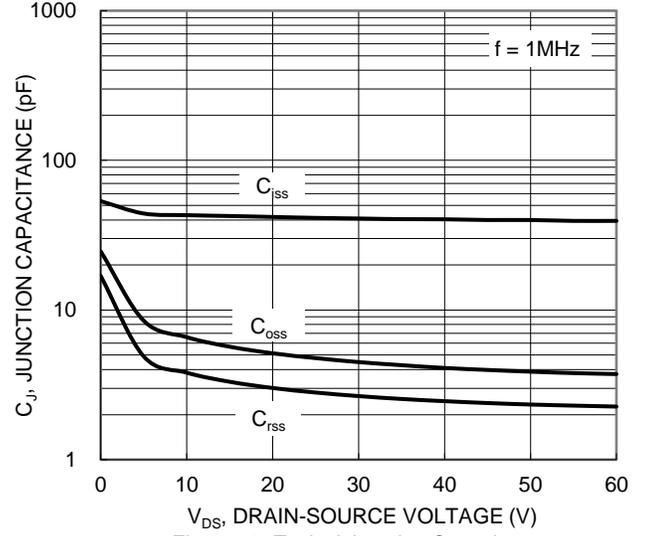


Figure 10. Typical Junction Capacitance

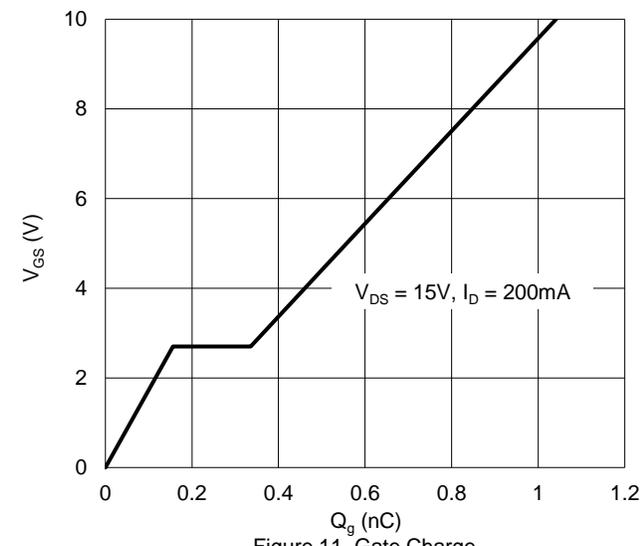


Figure 11. Gate Charge

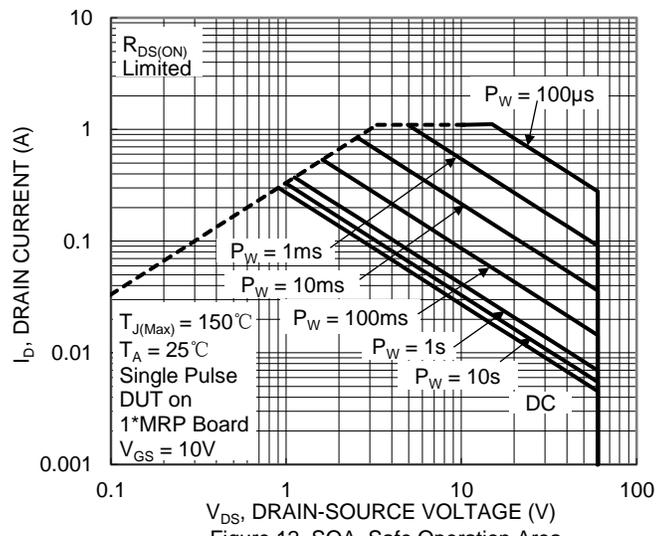
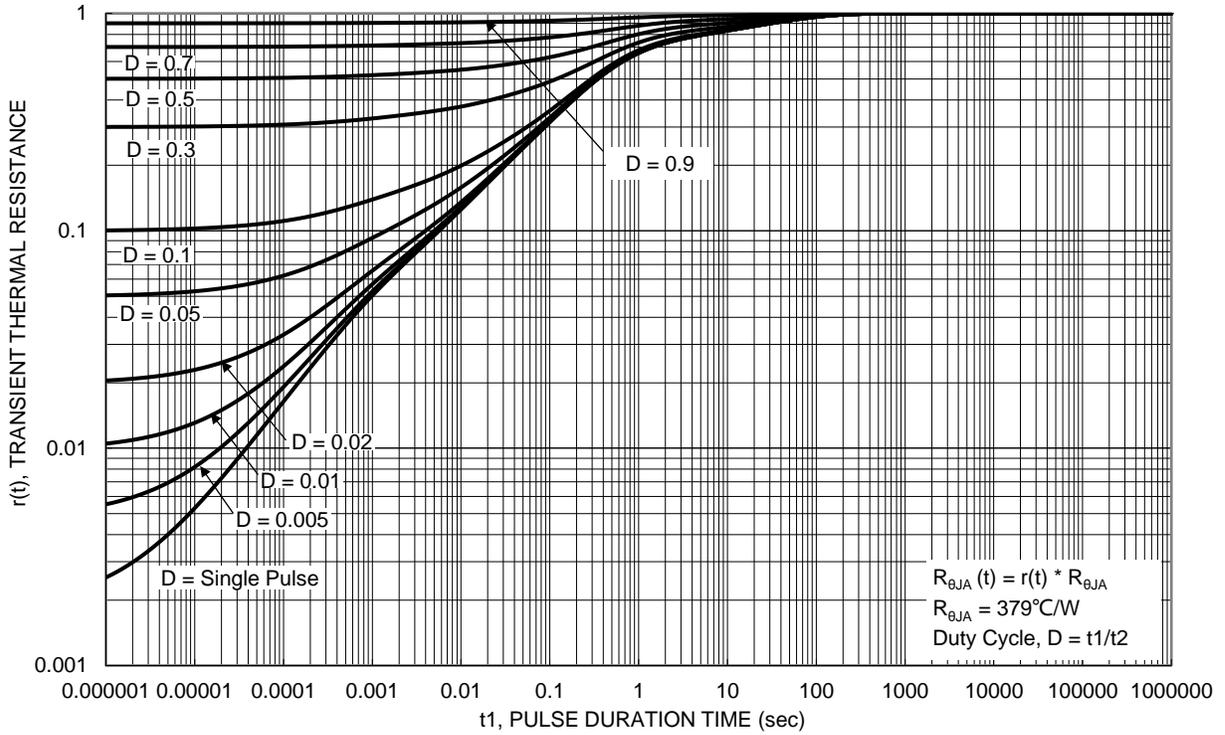
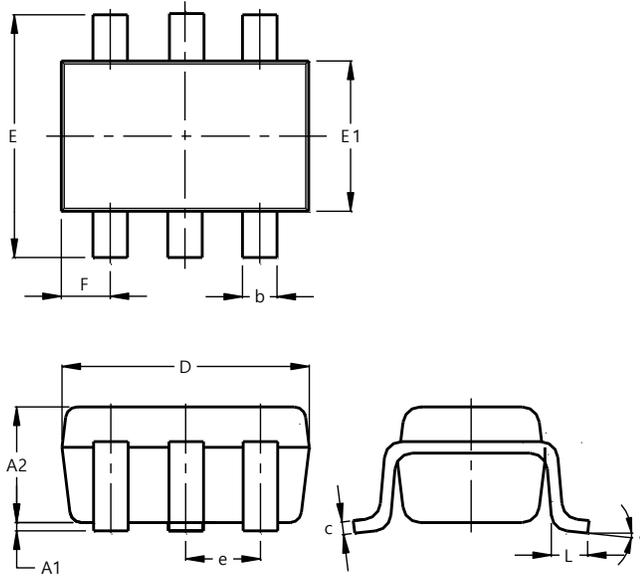


Figure 12. SOA, Safe Operation Area



Package Outline Dimensions

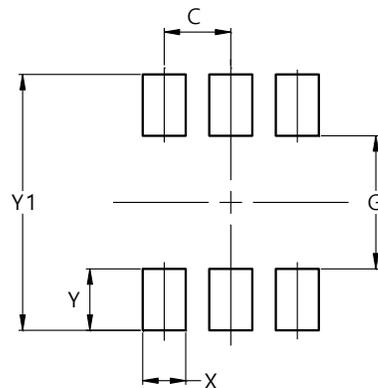
SOT363



SOT363			
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