

Product Summary

BV _{DSX}	R _{DS(ON)} max	I _{DSS} min T _A = +25°C
600V	700Ω @ V _{GS} = 0V	7mA

Features and Benefits

- N-Channel
- ESD Protected
- Depletion Mode
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/contact-us) or your local Diodes representative.**
<https://www.diodes.com/quality/product-definitions/>

Description and Applications

This new generation uses advanced planar technology MOSFET, provide excellent high voltage and fast switching, making it ideal for small-signal and level shift applications.

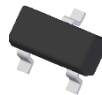
- Motor Control
- Backlighting
- DC-DC Converters
- Power Management Functions

Mechanical Data

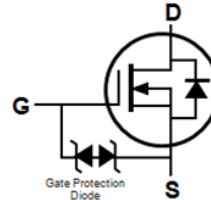
- Case: SOT23
- Case Material: Molded Plastic "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Terminal Connections: See Diagram
- Weight: 0.008 grams (Approximate)



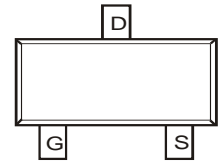
SOT23



Top View



Equivalent Circuit



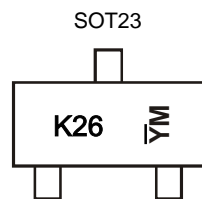
Top View

Ordering Information (Note 4)

Part Number	Case	Packaging
BSS126SK-7	SOT23	3000/Tape & Reel
BSS126SK-13	SOT23	10000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



K26 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: H = 2020)
 M = Month (ex: 9 = September)

Date Code Key

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	H	I	J	K	L	M	N	O	P	R	S	T
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	600	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current (Note 5) V _{GS} = 10V	Steady State	T _A = +25°C	I _D	30	mA
		T _A = +70°C		24	
Continuous Drain Current (Note 6) V _{GS} = 10V	Steady State	T _A = +25°C	I _D	35	mA
		T _A = +70°C		28	
Continuous Source Current (Note 5) V _{GS} = 10V	Steady State	T _A = +25°C	I _S	30	mA
		T _A = +70°C		24	
Continuous Source Current (Note 6) V _{GS} = 10V	Steady State	T _A = +25°C	I _S	35	mA
		T _A = +70°C		28	
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I _{DM}	0.09	A
Pulsed Source Current (10μs Pulse, Duty Cycle = 1%)			I _{SM}	0.09	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation, @T _A = +25°C (Note 5)	P _D	1	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 5)	R _{θJA}	124.7	°C/W
Power Dissipation, @T _A = +25°C (Note 6)	P _D	1.3	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 6)	R _{θJA}	95.5	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSX}	600	—	—	V	V _{GS} = -5V, I _D = 250μA
Drain-Source Cutoff Current	I _{D(OFF)}	—	—	0.1	μA	V _{GS} = -5V, V _{DS} = 600V
Gate-Source Leakage	I _{GSS}	—	—	±10	μA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	-2.7	-2.2	-1.4	V	V _{DS} = 3V, I _D = 8μA
On-State Drain Current	I _{DSS}	7	—	—	mA	V _{GS} = 0V, V _{DS} = 25V
Static Drain-Source On-Resistance	R _{DS(ON)}	—	111	500	Ω	V _{GS} = 10V, I _D = 16mA
		—	101	700		V _{GS} = 0V, I _D = 3mA
Diode Forward Voltage	V _{SD}	—	0.7	1.3	V	V _{GS} = -5V, I _S = 16mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	30.9	—	pF	V _{GS} = -5V, V _{DS} = 25V, f = 1MHz
Output Capacitance	C _{oss}	—	4.2	—		
Reverse Transfer Capacitance	C _{rss}	—	0.8	—		
Gate Resistance	R _G	—	121	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	—	2	—	nC	V _{DD} = 400V, I _D = 10mA, V _{GS} = -3V to 5V
Gate-Source Charge	Q _{gs}	—	0.03	—		
Gate-Drain Charge	Q _{gd}	—	1.7	—		
Turn-On Delay Time	t _{D(ON)}	—	5.2	—	ns	V _{DD} = 300V, V _{GS} = -3V to 7V, I _D = 0.01A, R _G = 6Ω
Turn-On Rise Time	t _R	—	17	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	67	—	ns	
Turn-Off Fall Time	t _F	—	873	—	ns	
Reverse Recovery Time	t _{RR}	—	164	—	ns	V _R = -100V, I _F = -1A, V _{GS} = -5V di/dt = 100A/μs
Reverse Recovery Charge	Q _{RR}	—	382	—	nC	

- Notes:
- Device mounted on FR-4 PCB with minimum recommended pad layout, single sided.
 - Device mounted on 1" × 1" FR-4 PCB with high coverage 2 oz. Copper, single sided.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to production testing.

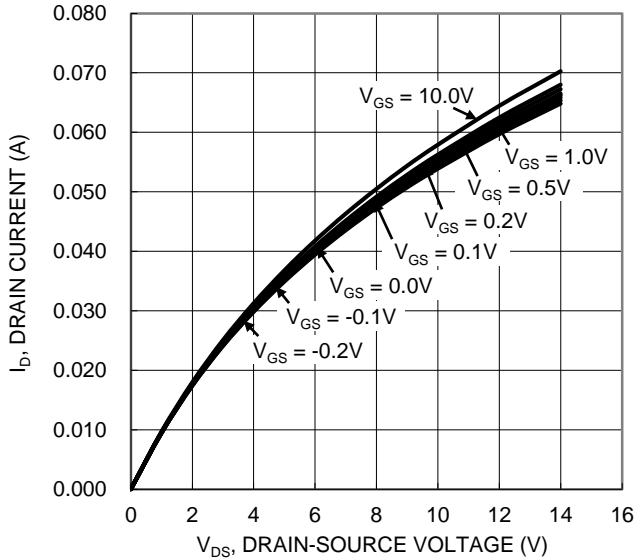


Figure 1. Typical Output Characteristic

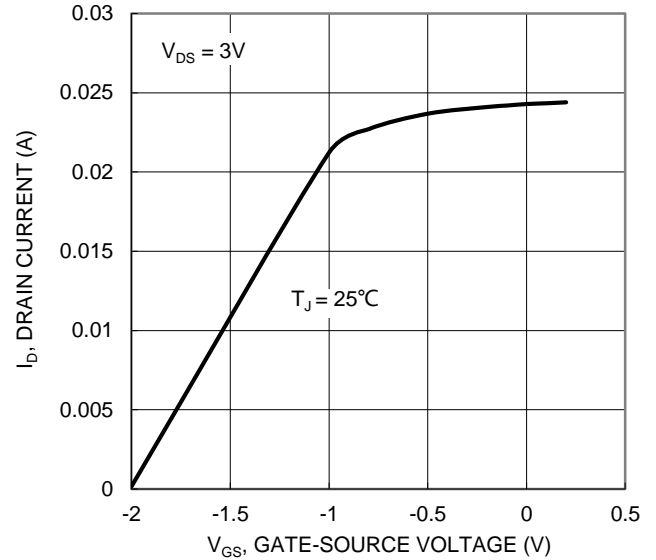


Figure 2. Typical Transfer Characteristic

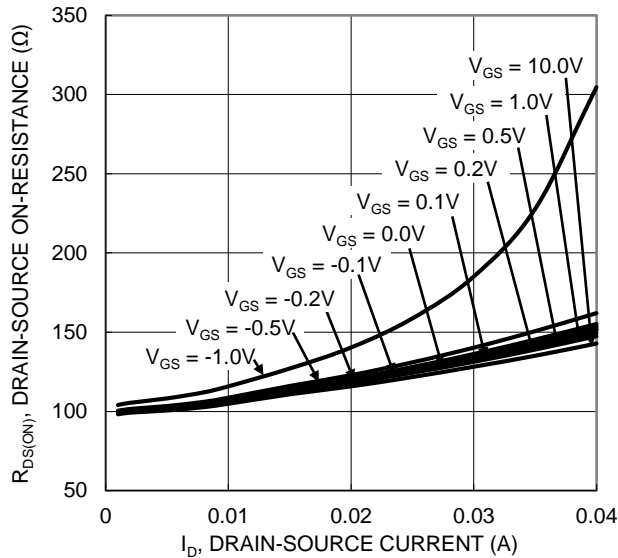


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

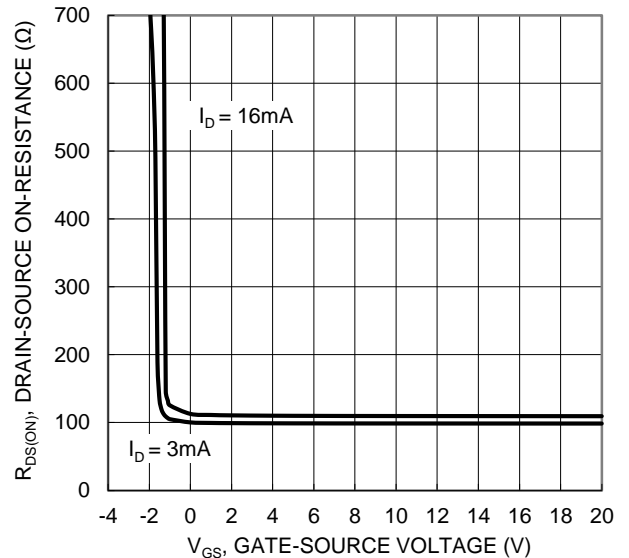


Figure 4. Typical Transfer Characteristic

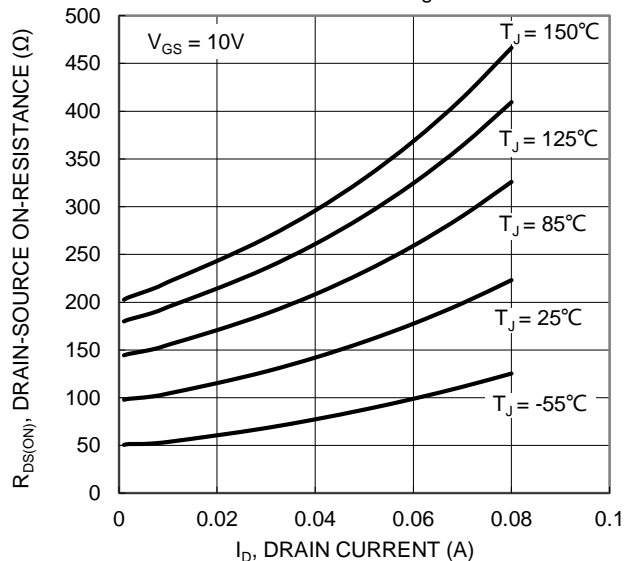


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

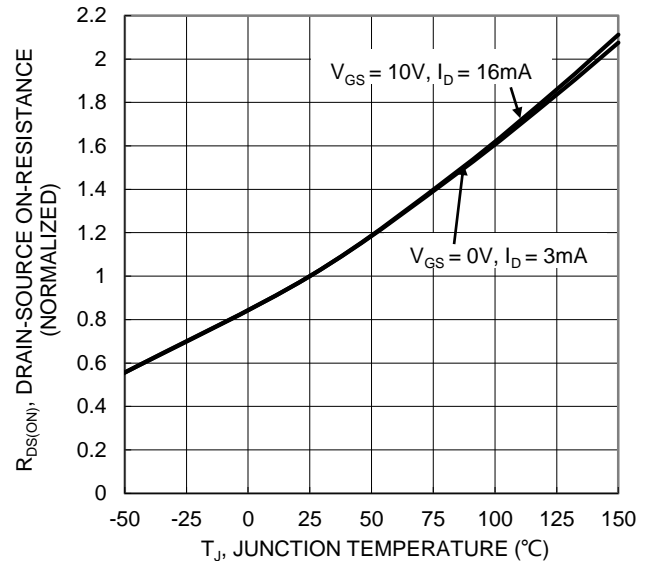


Figure 6. On-Resistance Variation with Junction Temperature

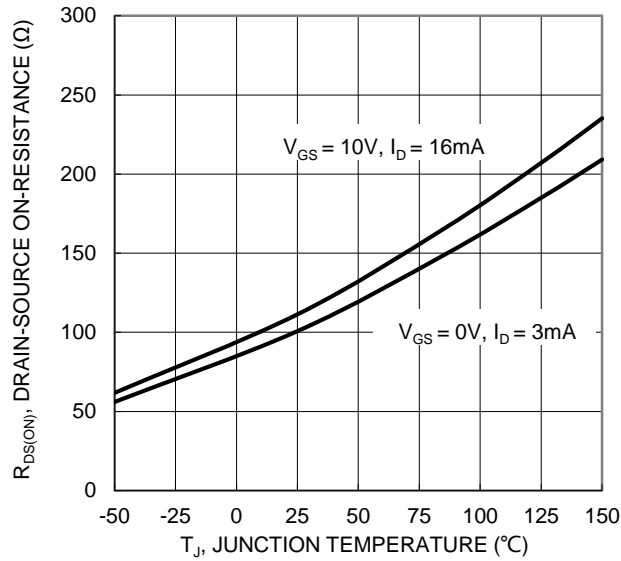


Figure 7. On-Resistance Variation with Junction Temperature

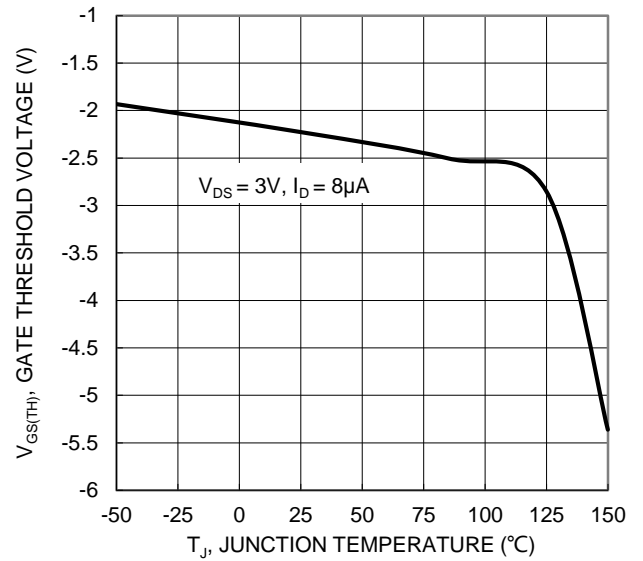


Figure 8. Gate Threshold Variation vs. Junction Temperature

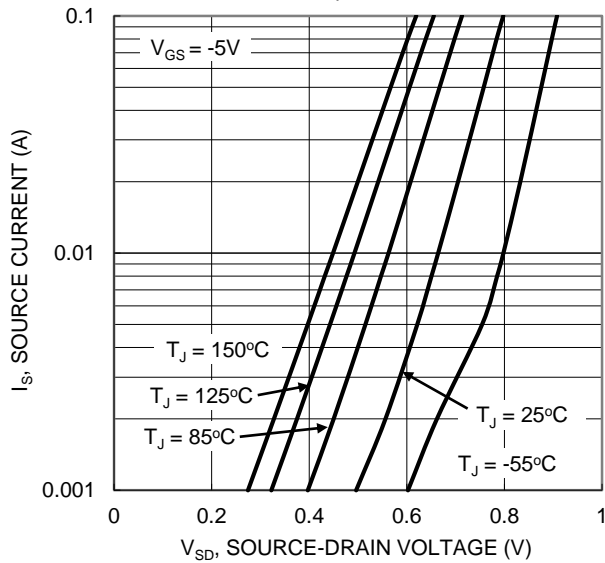


Figure 9. Diode Forward Voltage vs. Current

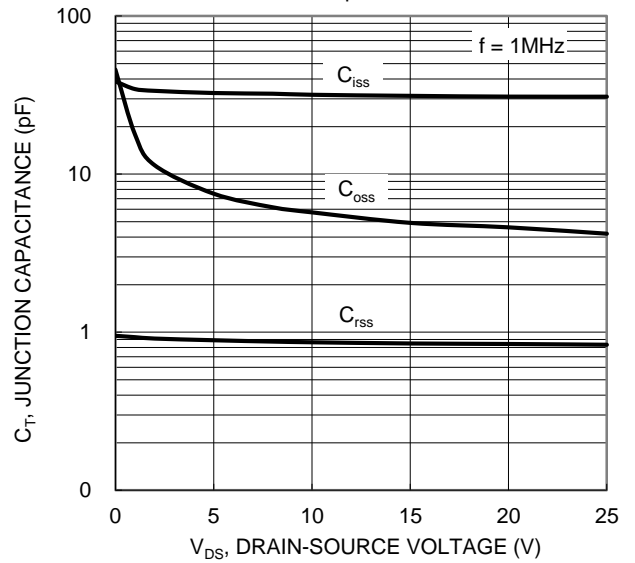


Figure 10. Typical Junction Capacitance

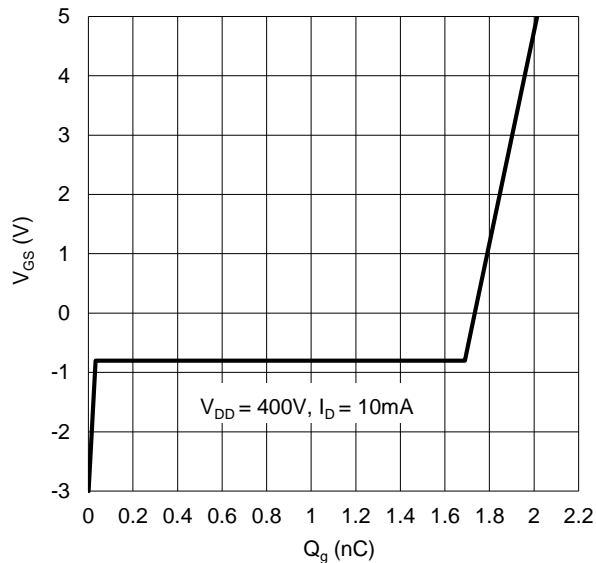


Figure 11. Gate Charge

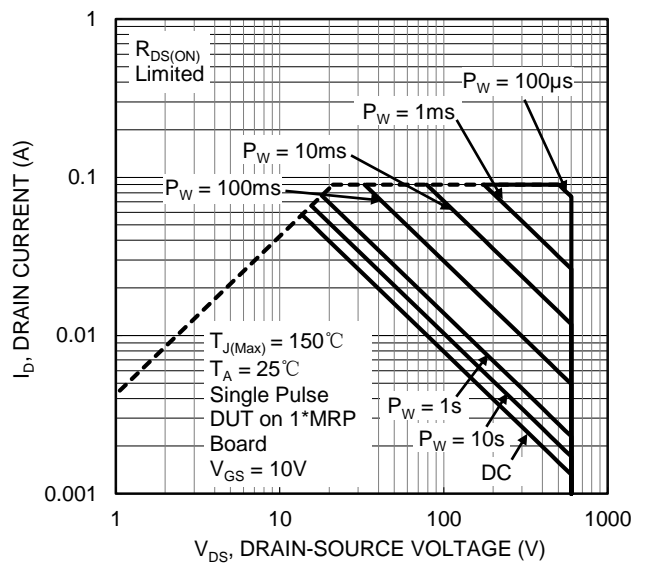


Figure 12. SOA, Safe Operation Area

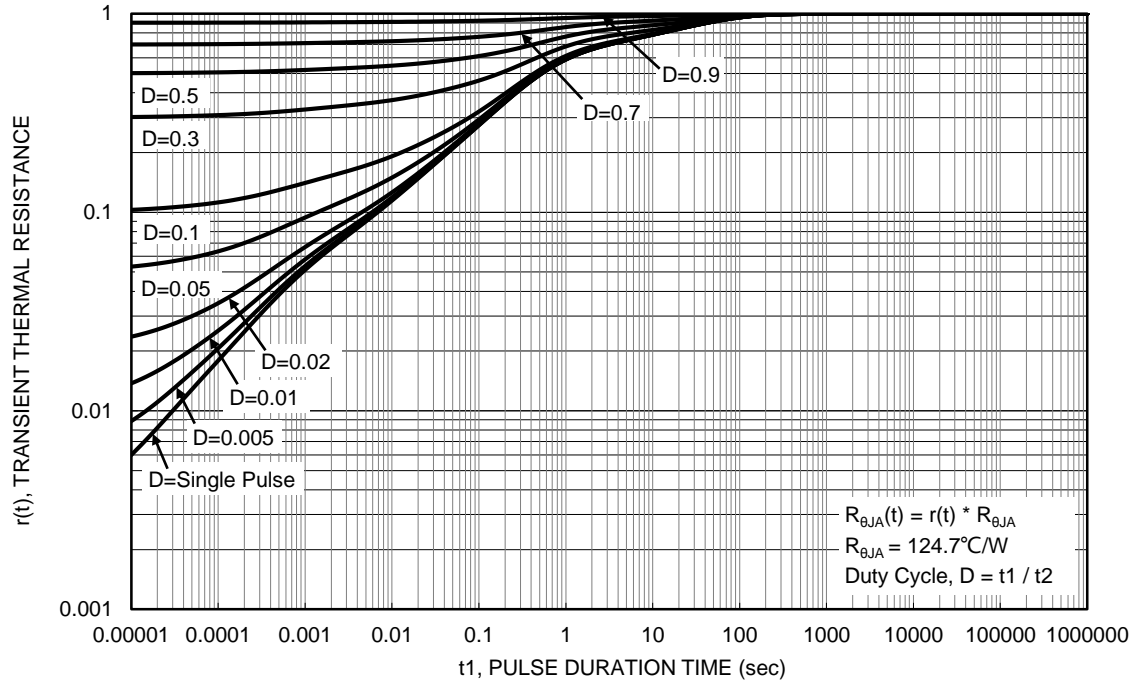
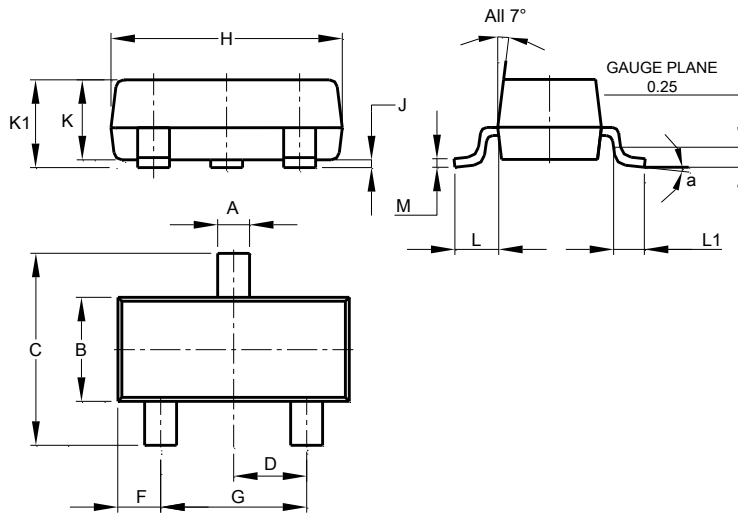


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23

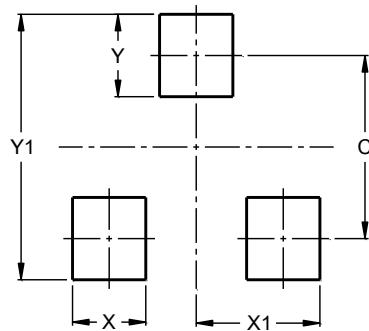


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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