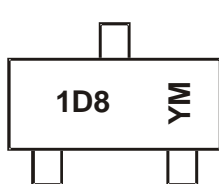
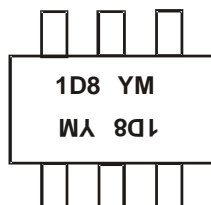


Marking Information


SOT23

TSOT26

1D8 = Product Type Marking Code
 YM = Date Code Marking
 Y or \bar{Y} = Year (ex: F= 2018)
 M = Month (ex: 9 = September)

Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Code	B	C	D	E	F	G	H	I	J	K	L	M	N

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	60	V
Gate-Source Voltage			V_{GSS}	± 12	V
Continuous Drain Current (Note 6) SOT23	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	470 370	mA
Continuous Drain Current (Note 6) TSOT26	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	630 500	mA
Maximum Continuous Body Diode Forward Current (Note 6)			I_S	0.5	A
Single Pulse Drain-to-Source Avalanche Energy (for relay coils/inductive loads of 80Ω or higher) (T_J initial = $+85^\circ\text{C}$)			E_Z	200	mJ
Peak Power Dissipation, Drain-to-Source (non-repetitive current square pulse 1.0ms duration) (T_J initial = $+85^\circ\text{C}$)			P_{PK}	20	W
Load Dump Pulse, Drain-to-Source, $R_{SOURCE} = 0.5\Omega$, $t = 300\text{ms}$ (for relay coils/inductive loads of 80Ω or higher) (T_J Initial = $+85^\circ\text{C}$)			E_{LD1}	60	V
Inductive Switching Transient 1, Drain-to-Source (Waveform: $R_{SOURCE} = 10\Omega$, $t = 2.0\text{ms}$) (for relay coils/inductive loads of 80Ω or higher) (T_J Initial = $+85^\circ\text{C}$)			E_{LD2}	100	V
Inductive Switching Transient 2, Drain-to-Source (Waveform: $R_{SOURCE} = 4.0\Omega$, $t = 50\mu\text{s}$) (for relay coils/inductive loads of 80Ω or higher) (T_J Initial = $+85^\circ\text{C}$)			E_{LD3}	300	V
Reverse Battery, 10 Minutes (Drain-to-Source) (for relay coils/inductive loads of 80Ω or higher)			Rev-Bat	-14	V
Dual Voltage Jump Start, 10 Minutes (Drain-to-Source)			Dual-Volt	28	V
ESD Human Body Model (HBM)			ESD	4,000	V

Thermal Characteristics (SOT23) (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	390	mW
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	321	°C/W
Total Power Dissipation (Note 6)	P _D	610	mW
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	208	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

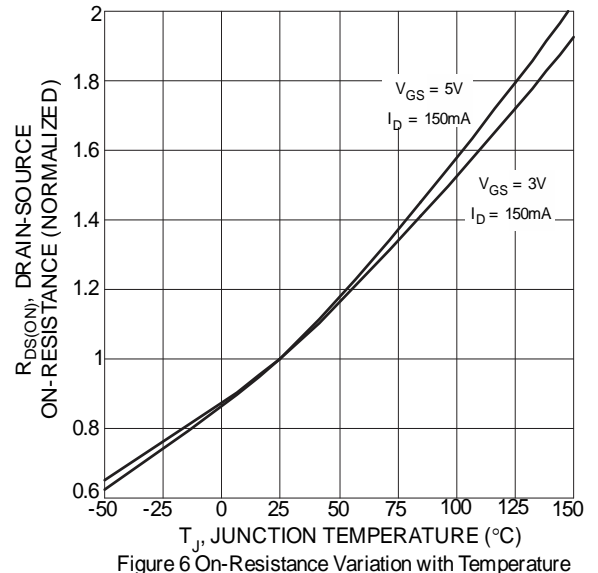
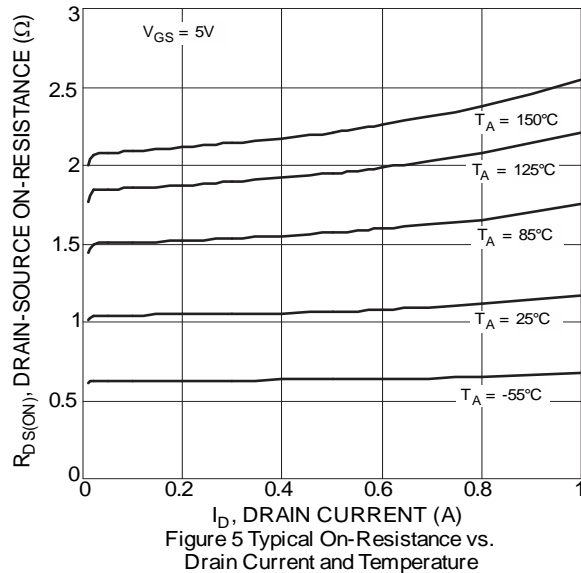
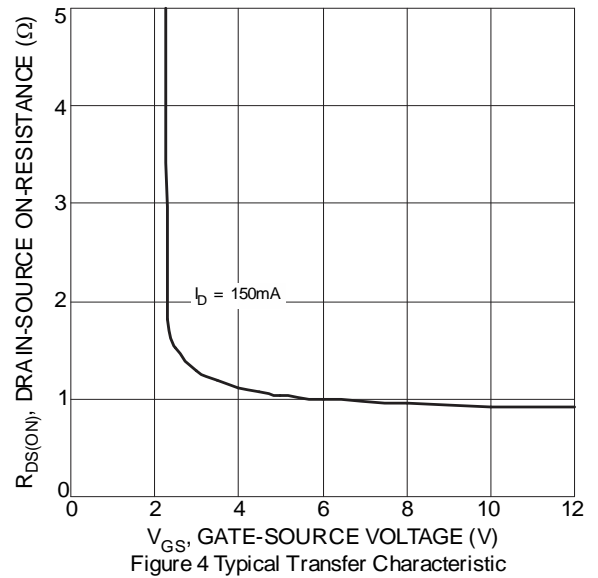
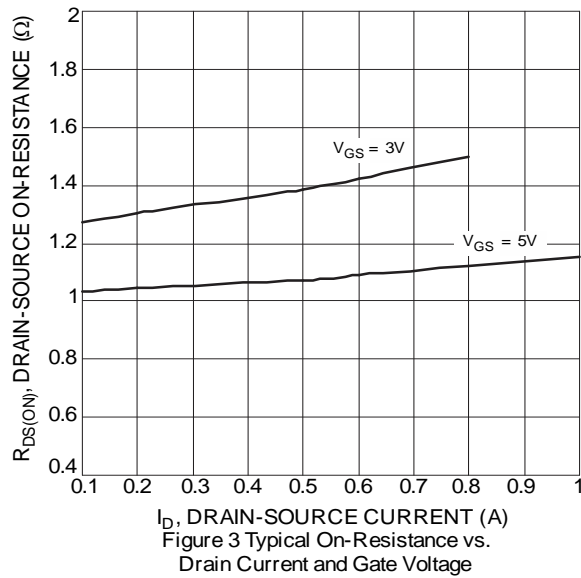
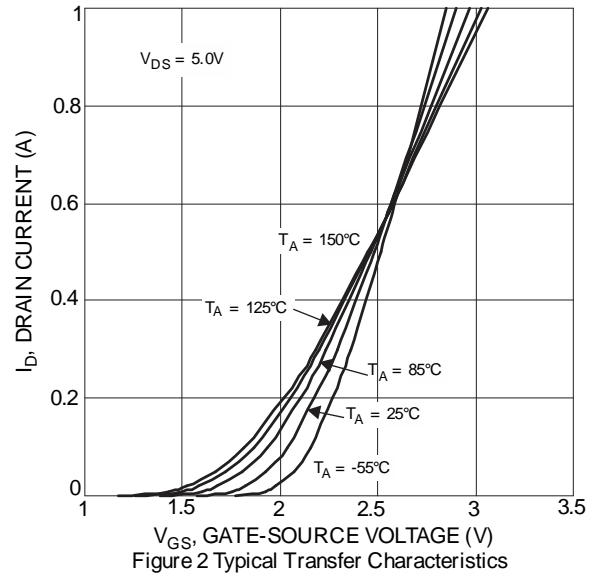
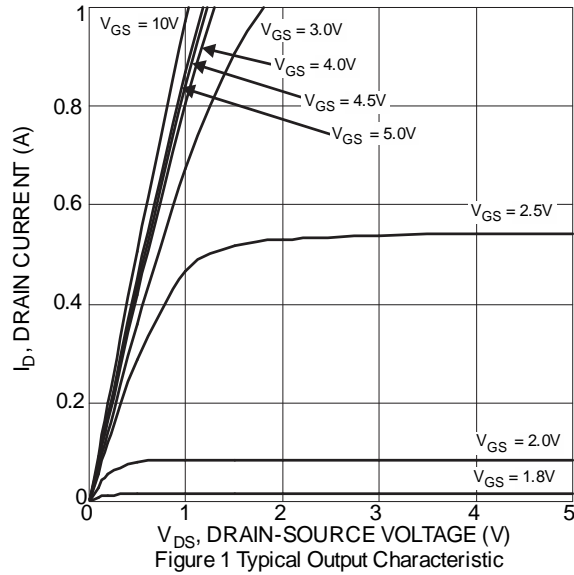
Thermal Characteristics (TSOT26) (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	820	mW
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	154	°C/W
Total Power Dissipation (Note 6)	P _D	1090	mW
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	116	°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 _{DSS}	60	—	—	V	V _{GS} = 0V, I _D = 10mA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	50 0.5	μA	V _{DS} = 60V, V _{GS} = 0V V _{DS} = 12V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±90 ±60	μA	V _{GS} = ±5V, V _{DS} = 0V V _{GS} = ±3V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	1.3	—	2.0	V	V _{DS} = V _{GS} , I _D = 1mA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	1.1 1.4	1.8 2.4	Ω	V _{GS} = 5V, I _D = 0.15A V _{GS} = 3V, I _D = 0.15A
Forward Transfer Admittance	Y _{fs}	80	—	—	ms	V _{DS} = 12V, I _D = 0.15A
Diode Forward Voltage	V _{SD}	—	—	1.2	V	V _{GS} = 0V, I _S = 0.15A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	12.9	—	pF	V _{DS} = 12V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	17	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	0.84	—	pF	
Total Gate Charge	Q _g	—	0.74	—	nC	V _{GS} = 5V, V _{DS} = 12V, I _D = 150mA
Gate-Source Charge	Q _{gs}	—	0.19	—	nC	
Gate-Drain Charge	Q _{gd}	—	0.16	—	nC	
Turn-On Delay Time	t _{D(ON)}	—	131	—	ns	V _{DD} = 12V, V _{GS} = 5V
Turn-On Rise Time	t _R	—	301	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	582	—	ns	
Turn-Off Fall Time	t _F	—	440	—	ns	

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



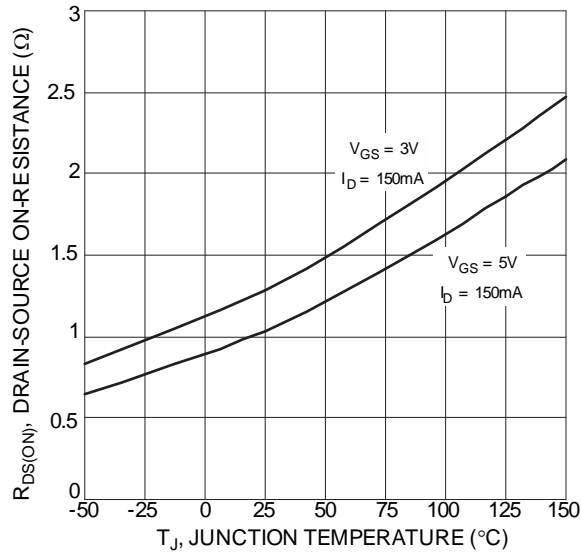


Figure 7 On-Resistance Variation with Temperature

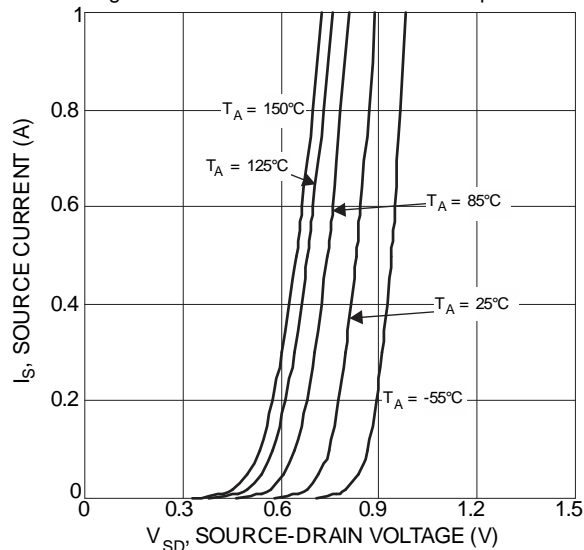


Figure 9 Diode Forward Voltage vs. Current

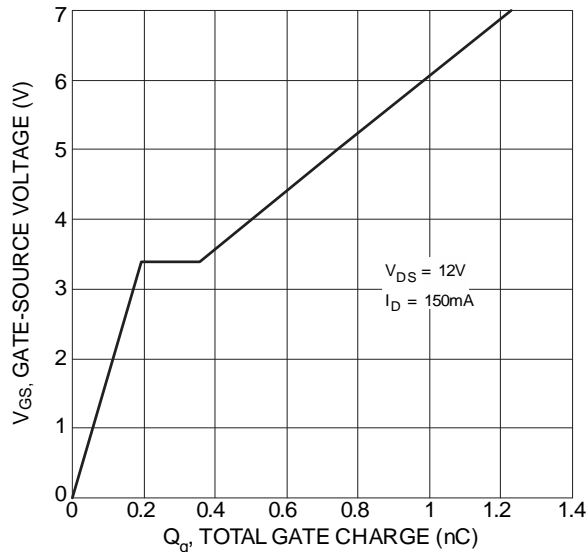


Figure 11 Gate Charge

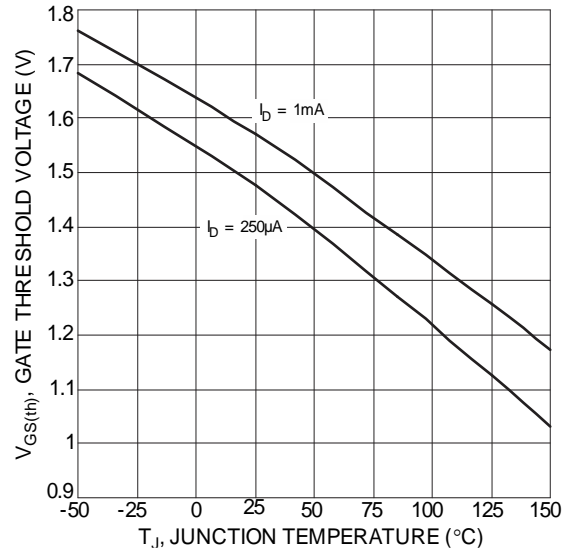


Figure 8 Gate Threshold Variation vs. Junction Temperature

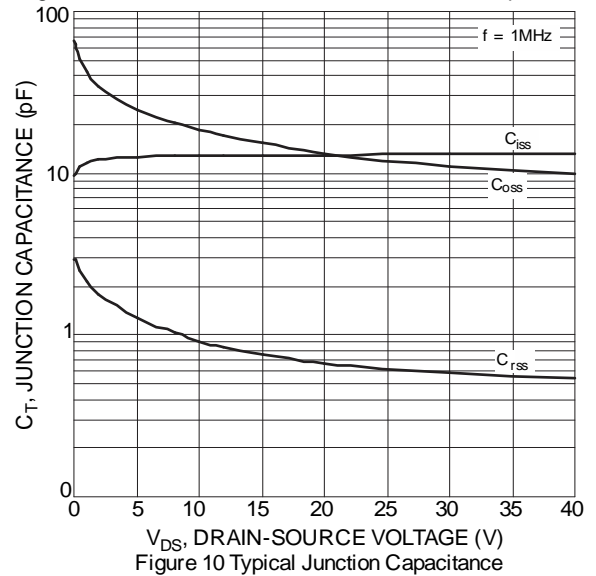


Figure 10 Typical Junction Capacitance

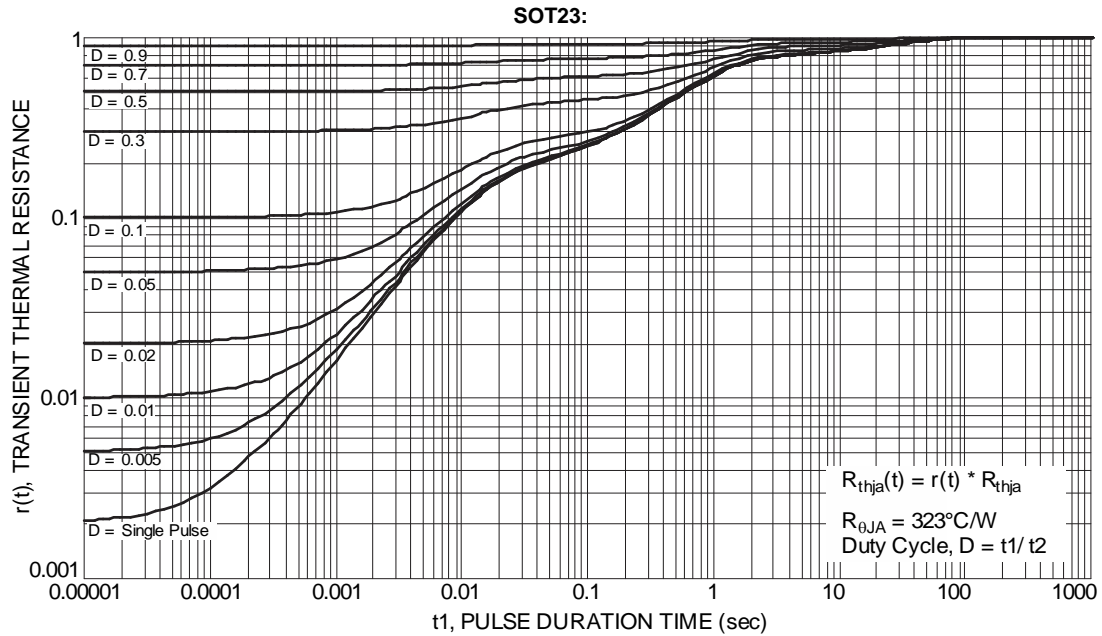


Figure 12 Transient Thermal Resistance

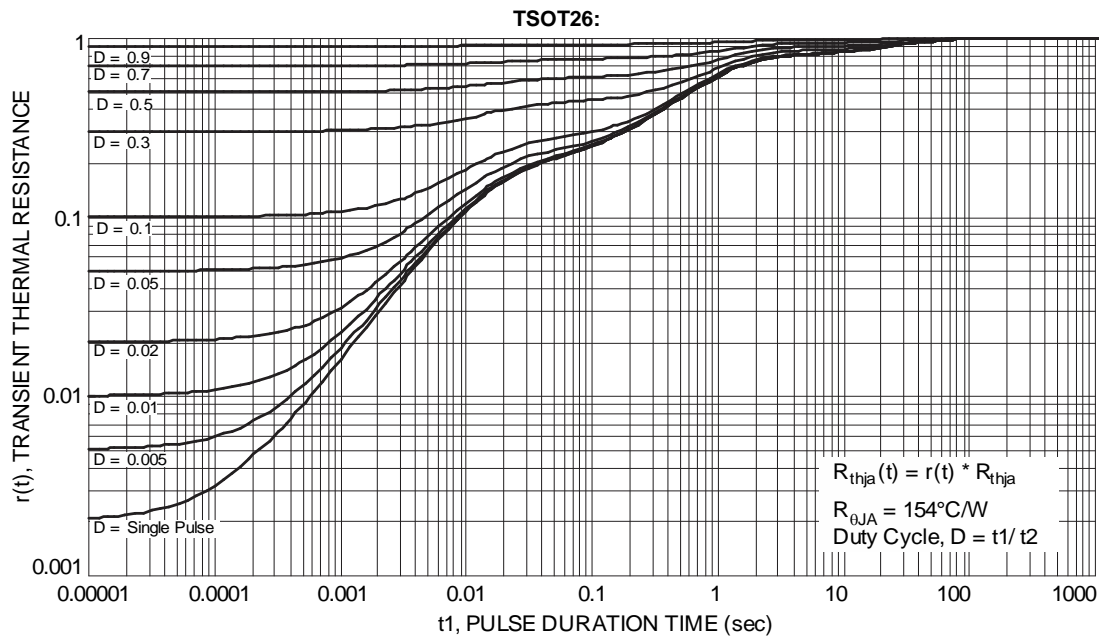
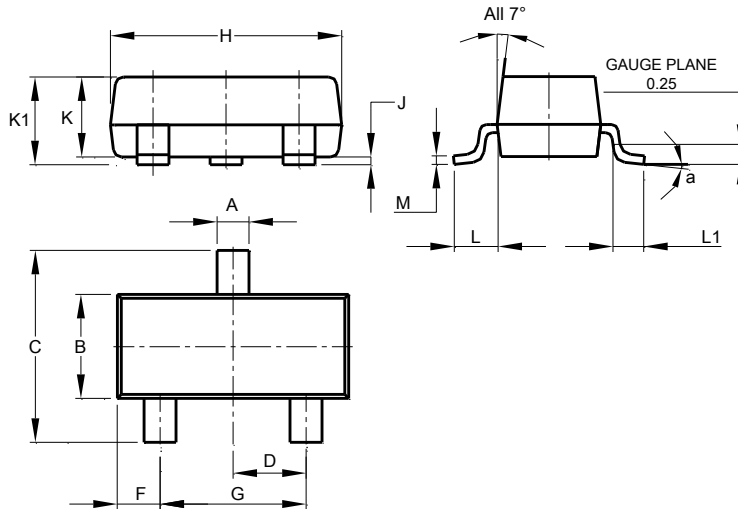


Figure 13 Transient Thermal Resistance

Package Outline Dimensions

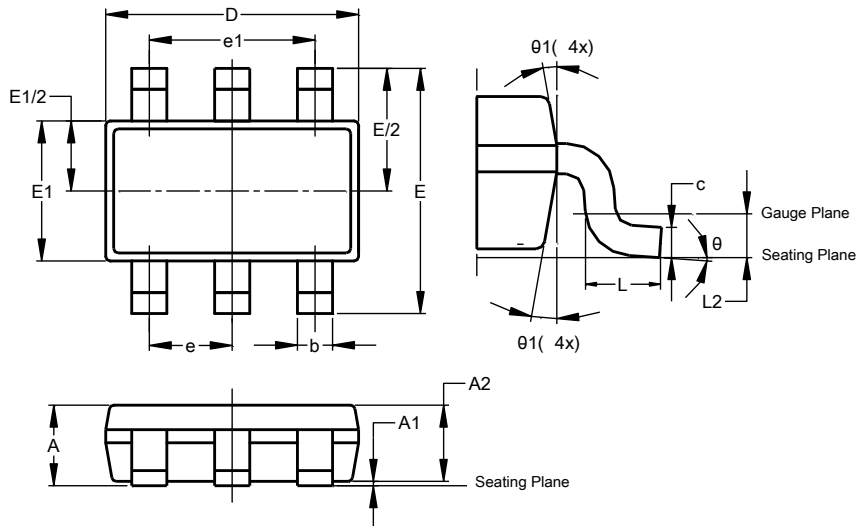
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

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			

TSOT26

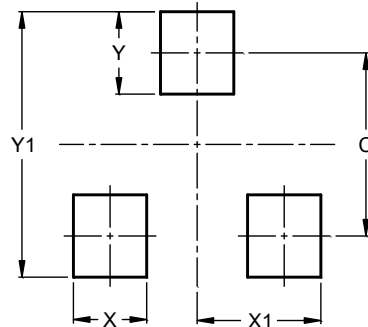


TSOT26			
Dim	Min	Max	Typ
A	—	1.00	—
A1	0.010	0.100	—
A2	0.840	0.900	—
D	2.800	3.000	2.900
E	2.800 BSC		
E1	1.500	1.700	1.600
b	0.300	0.450	—
c	0.120	0.200	—
e	0.950 BSC		
e1	1.900 BSC		
L	0.30	0.50	—
L2	0.250 BSC		
θ	0°	8°	4°
θ1	4°	12°	—
All Dimensions in mm			

Suggested Pad Layout

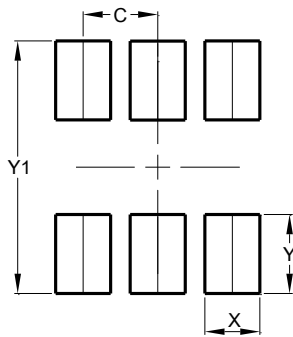
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23



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

TSOT26



Dimensions	Value (in mm)
C	0.950
X	0.700
Y	1.000
Y1	3.199

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