



General Description

The AOD66923 use advanced SGT MOSFET technology to provide low RDS(ON), low gate charge, fast switching and excellent avalanche characteristics.

This device is specially designed to get better ruggedness and suitable to use in



TO-252-2L

General Features

$V_{DS} = 100V$ $I_D = 70A$

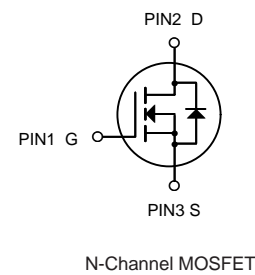
$R_{DS(ON)} < 17m\Omega$ @ $V_{GS} = 10V$

Applications

Consumer electronic power supply Motor control

Synchronous-rectification Isolated DC

Synchronous-rectification applications



Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
AOD66923	TO-252-2L	HXY MOSFET	2500

Absolute Maximum Ratings at $T_j = 25^\circ C$ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain source voltage	VDS	100	V
Gate source voltage	VGS	± 20	V
Continuous drain current ¹⁾	ID	70	A
Pulsed drain current ²⁾	ID, pulse	280	A
Power dissipation ³⁾	P _D	100	W
Single pulsed avalanche energy ⁵⁾	EAS	110	mJ
Operation and storage temperature	Tstg, Tj	-55 to 150	°C
Thermal resistance, junction-case	R θ JC	1.25	°C/W
Thermal Resistance Junction-Ambient ¹	R θ JA	64	°C/W



Electrical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	100	--	--	V
I_{DSS}	Drain to Source Leakage Current	$V_{DS}=100V, V_{GS}=0V$	--	--	1	μA
$I_{GSS(F)}$	Gate to Source Forward Leakage	$V_{GS}=+20V, V_{DS}=0V$	--	--	100	nA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	$V_{GS}=-20V, V_{DS}=0V$	--	--	-100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.3	1.8	2.3	V
$R_{DS(ON)}$	Drain-to-Source On-Resistance	$V_{GS}=10V, I_D=20A$	--	8.5	10.5	$m\Omega$
		$V_{GS}=4.5V, I_D=15A$		9.5	15	$m\Omega$
C_{iss}	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 50V$ $f = 1.0MHz$	--	1368	--	pF
C_{oss}	Output Capacitance		--	451	--	
C_{rss}	Reverse Transfer Capacitance		--	12.9	--	
R_g	Gate resistance	$V_{GS}=0V, V_{DS}$ Open	--	0.48	--	Ω
$t_{d(ON)}$	Turn-on Delay Time	$I_D = 10A$ $V_{DS} = 50V$ $V_{GS} = 10V$ $R_G = 4\Omega$	--	16	--	ns
t_r	Rise Time		--	10	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	40	--	
t_f	Fall Time		--	6	--	
Q_g	Total Gate Charge	$V_{GS} = 10V$	--	31.3	--	nC
Q_{gs}	Gate Source Charge	$V_{DS} = 50V$	--	3.49	--	
Q_{gd}	Gate Drain Charge	$I_D = 10A$	--	7.63	--	
I_S	Diode Forward Current	$T_C = 25^\circ C$	--	--	70	A
V_{SD}	Diode Forward Voltage	$I_S=10A, V_{GS}=0V$	--	--	1.2	V
t_{rr}	Reverse Recovery time	$I_S=10A, V_{DD}=50V$	--	103	--	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu s$	--	187	--	nC

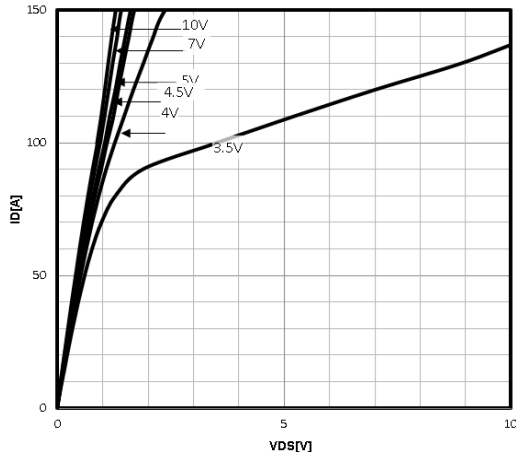
a1: Repetitive rating; pulse width limited by maximum junction temperature

a2: $V_{DD}=50V, L=0.3mH, R_g=25\Omega, \text{Starting } T_J=25^\circ C$

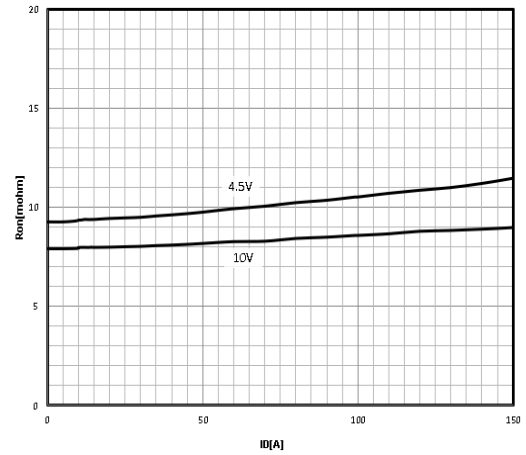


Typical Characteristics

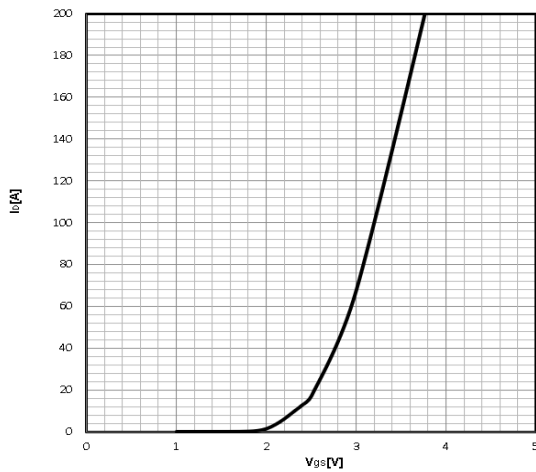
Typ. output characteristics
 $I_D=f(V_{DS})$



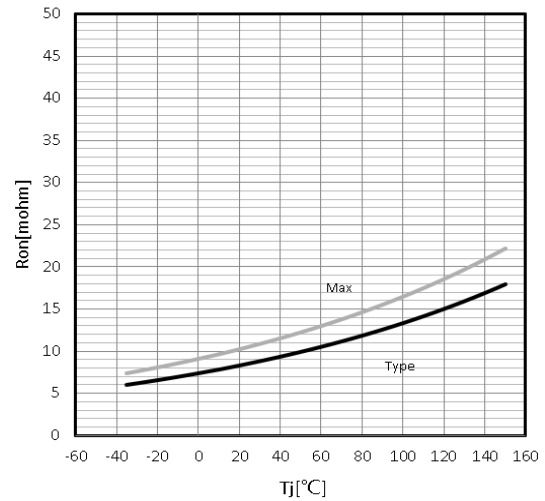
Typ. drain-source on resistance
 $R_{DS(on)}=f(I_D)$



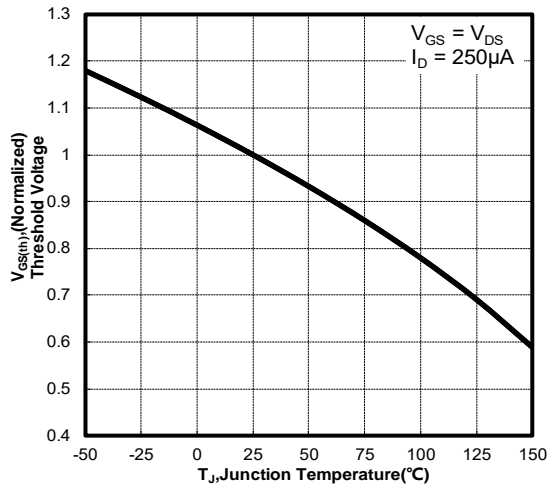
Typ. transfer characteristics
 $I_D=f(V_{GS})$



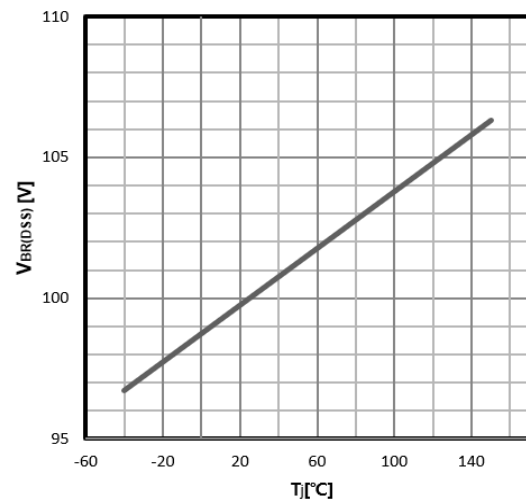
Drain-source on-state resistance
 $R_{DS(on)}=f(T_j); I_D=20A; V_{GS}=10V$



Gate Threshold Voltage
 $V_{TH}=f(T_j); I_D=250\mu A$

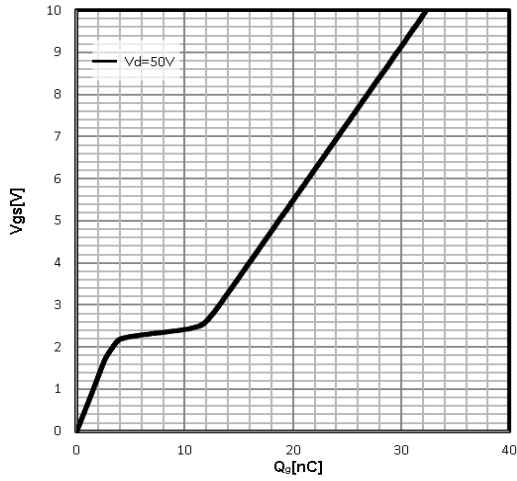


Drain-source breakdown voltage
 $V_{BR(DSS)}=f(T_j); I_D=250\mu A$

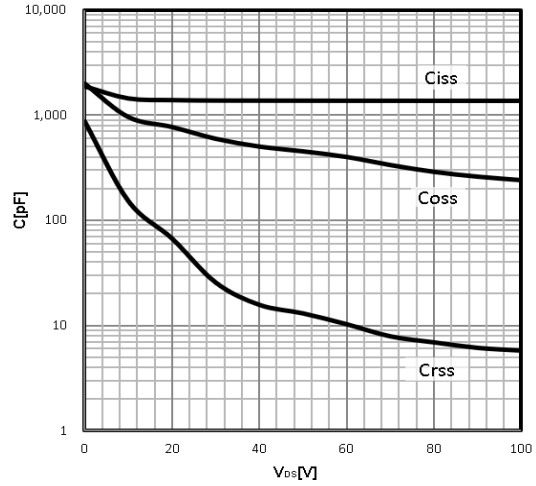




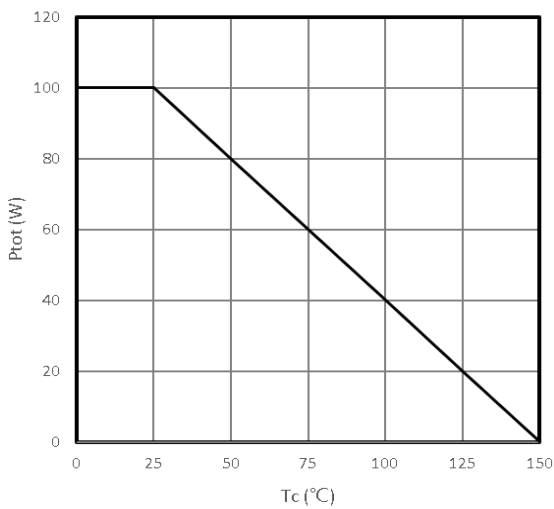
Typ. gate charge
 $V_{GS}=f(Q_g)$; $I_D=10A$



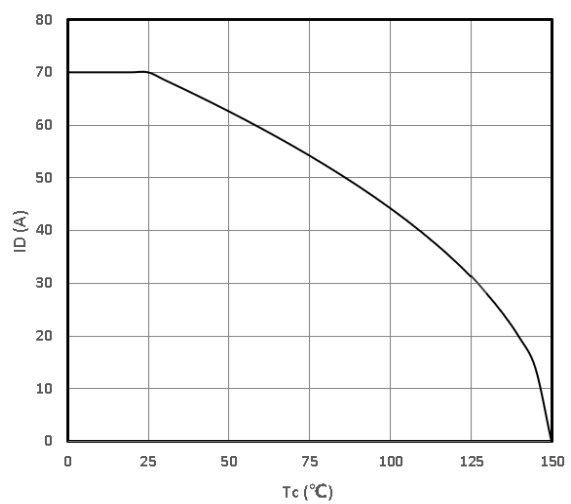
Typ. capacitances
 $C=f(V_{DS})$; $V_{GS}=0V$; $f=1MHz$



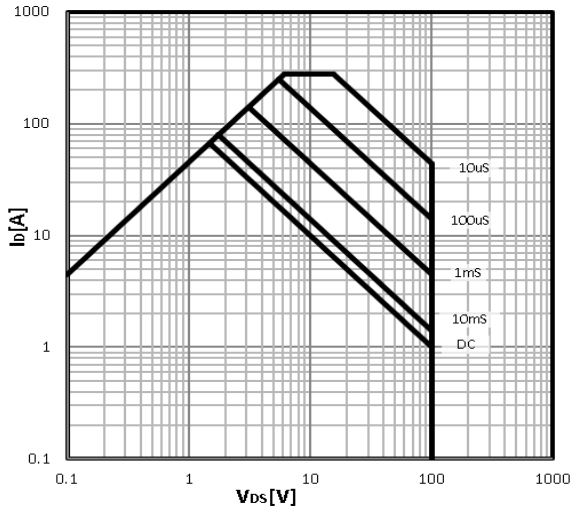
Power Dissipation
 $P_{tot}=f(T_c)$



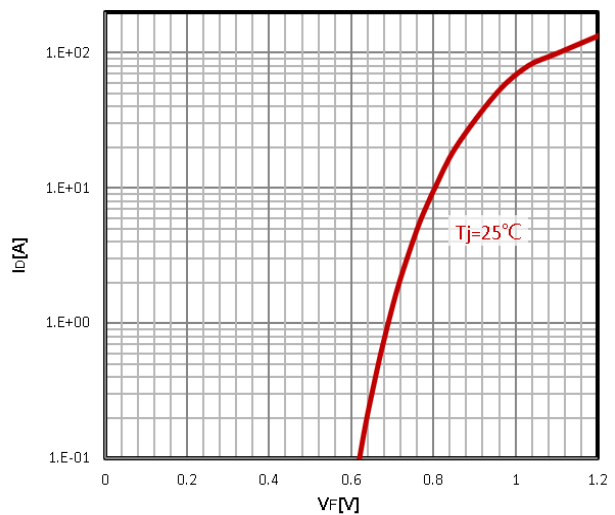
Maximum Drain Current
 $I_D=f(T_c)$



Safe operating area
 $I_D=f(V_{DS})$



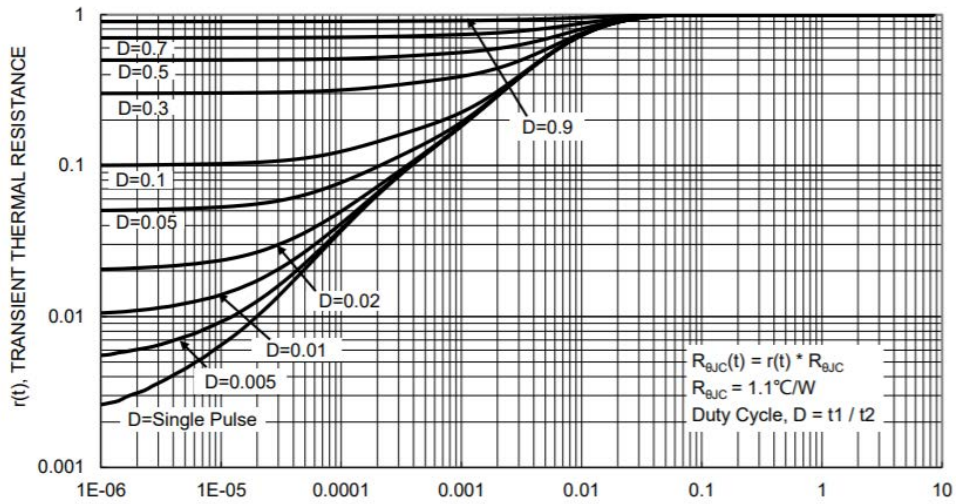
Body Diode Forward Voltage Variation
 $I_F=f(V_{GS})$





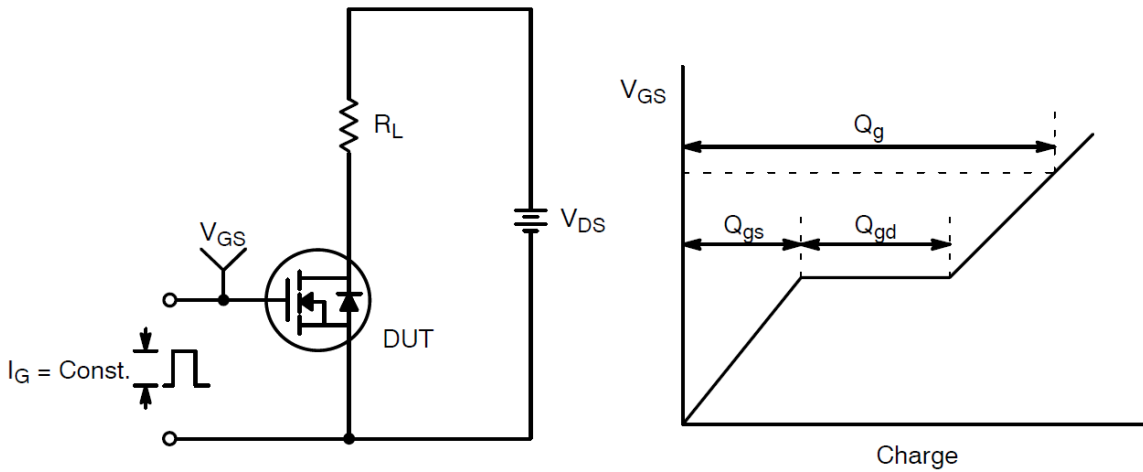
Max. transient thermal impedance

$$Z_{thJC} = f(t_p)$$

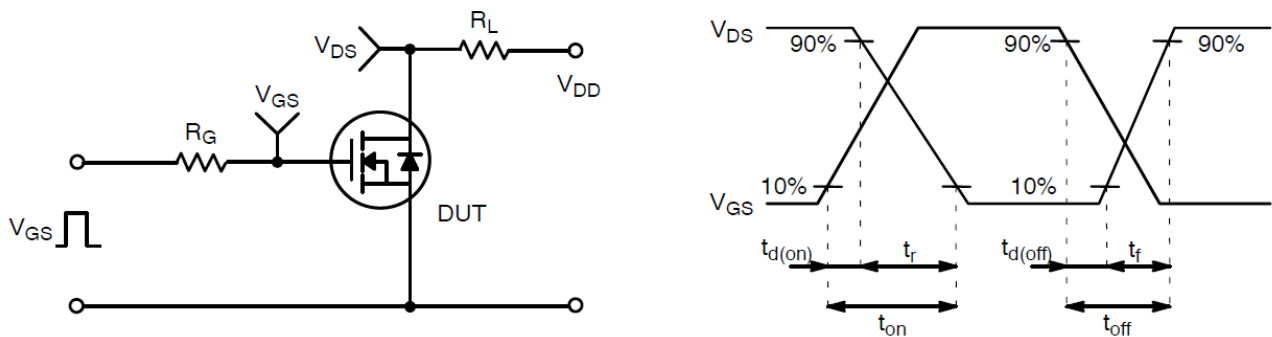




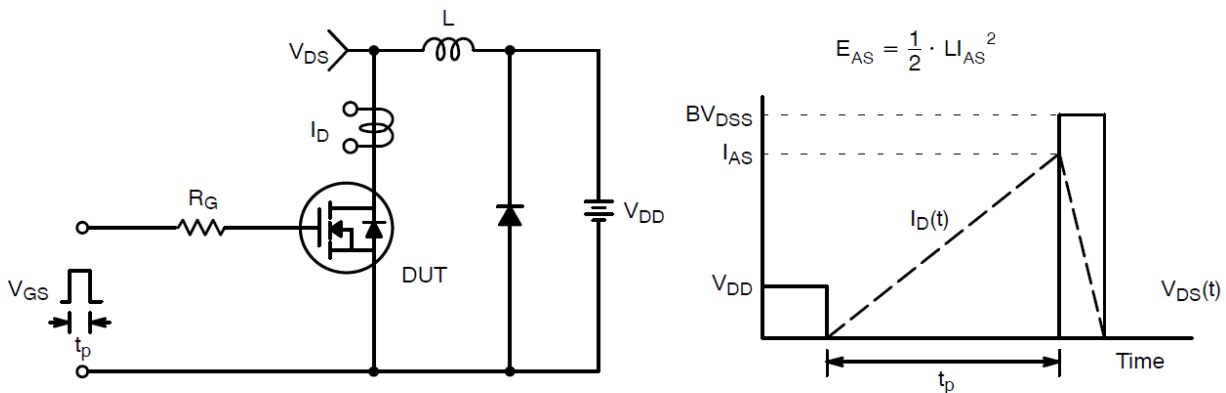
Test Circuit and Waveform:



Gate Charge Test Circuit & Waveform



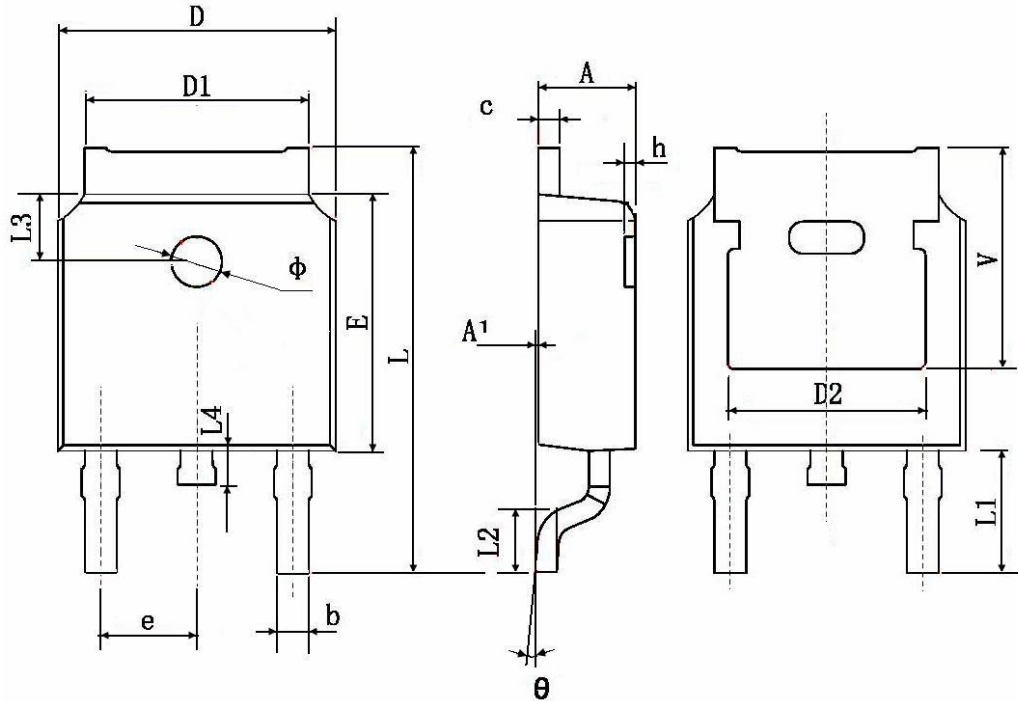
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms



TO-252-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	0.483 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
phi	1.100	1.300	0.043	0.051
theta	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	



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