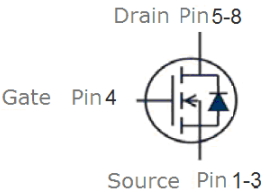
ASDM65N18
65V N-CHANNEL MOSFET

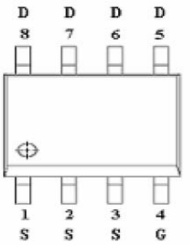
Features

- Low Input Capacitance
- Low Miller Charge
- Low on-resistance RDS(on) @ VGS=4.5 V
- Low Input/Output Leakage
- Pb-free lead plating; RoHS compliant
-

V_{DS}	65	V
$R_{DS(on),Typ}$@ V_{GS}=10 V	7.0	mΩ
I_D	80	A



Simplified Outline



Application

- Motor / Body Load Control

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter			Value	Unit
Drain-Source Voltage		V_{DS}	65	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current-Continuous	T_A=25°C	I_D	80	A
	T_A=70°C		40	A
Drain Current-Pulsed Note 1		I_{DM}	320	A
Maximum Power Dissipation	T_A=25°C	P_D	2.5	W
	T_A=70°C		2.0	W
Storage Temperature Range		T_{STG}	-55 to +150	°C
Operating Junction Temperature Range		T_J	-55 to +150	°C

Thermal Resistance Ratings

Parameter		Conditions	Min.	Typ.	Max.	Unit
Maximum Junction-to-Ambient	$R_{\theta JA}$	Steady State	-	-	75	°C/W
Maximum Junction-to-Ambient	$R_{\theta JA}$	t ≤ 10s	-	-	40	°C/W
Maximum Junction-to-Case	$R_{\theta JC}$	Steady State	-	-	24	°C/W

Electrical Characteristics (T_J=25°C unless otherwise noted)

OFF CHARACTERISTICS						
Parameter	**Symbol**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_{DS}=250μA	65	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=48V, V_{GS}=0V	-	-	1	μA
Gate-Body Leakage	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA

ON CHARACTERISTICS						
Parameter	**Symbol**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=250μA	1.2	1.7	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_{DS}=12A	-	-	7.5	mΩ
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_{DS}=9A	-	-	9	mΩ
Forward Transconductance	gfs	V_{DD}=10V, I_{DD}=6A	-	11	-	S

DYNAMIC CHARACTERISTICS						
Parameter	**Symbol**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Input Capacitance	C_{iss}	V_{DS}=30V, V_{GS}=0V, f=1MHz	-	3450	-	pF
Output Capacitance	C_{oss}		-	310	-	
Reverse Transfer Capacitance	C_{rss}		-	115	-	

SWITCHING CHARACTERISTICS						
Parameter	**Symbol**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Turn-On Delay Time	$T_{d(on)}$	V_{GS}=10V, V_{DS}=30V, R_L=5Ω, R_{GEN}=3Ω	-	28	-	ns
Rise Time	t_r		-	32	-	
Turn-Off Delay Time	$T_{d(off)}$		-	98	-	
Fall Time	t_f		-	68	-	
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=30V, I_D=10A	-	75	-	nC
Gate to Source Gate Charge	Q_{gs}		-	19	-	
Gate to Drain “Miller” Charge	Q_{gd}		-	26	-	
Gate resistance	Rg	V_{DS}=0V, V_{GS}=0V, f=1MHz	-	1.2	-	Ω

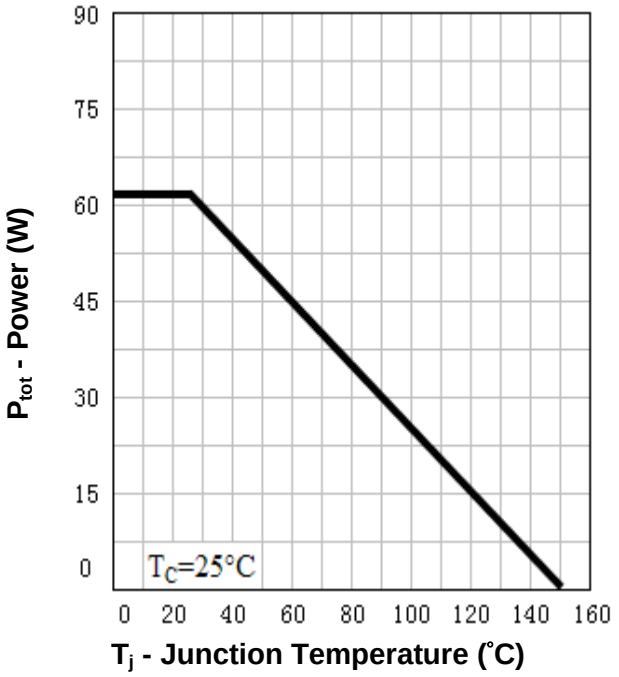
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Parameter	**Symbol**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1A	-	-	1.3	V
Continuous Source Current	I_S	I_F=12A, dI/dt=500A/μs	-	13	-	A
Pulsed Source Current	I_{SM}		-	45	-	A

Notes:

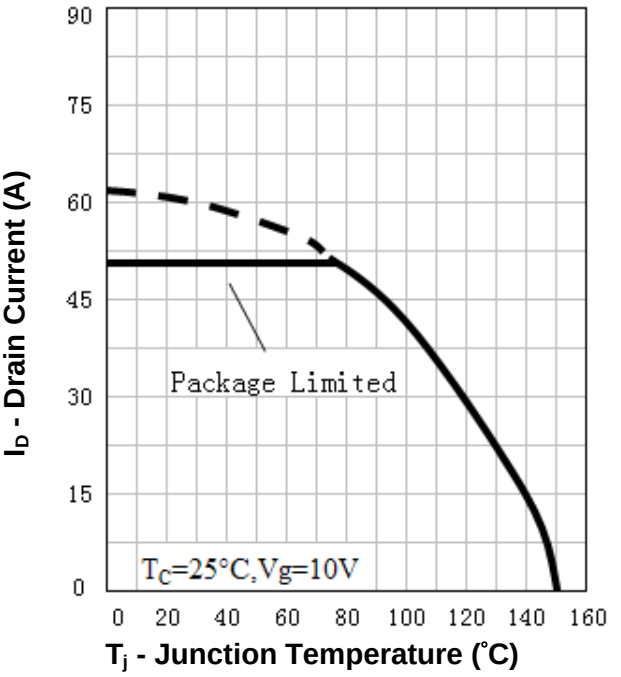
1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design. $R_{\theta JA}$ shown below for single device operation on FR-4 in still air.

Typical Characteristics

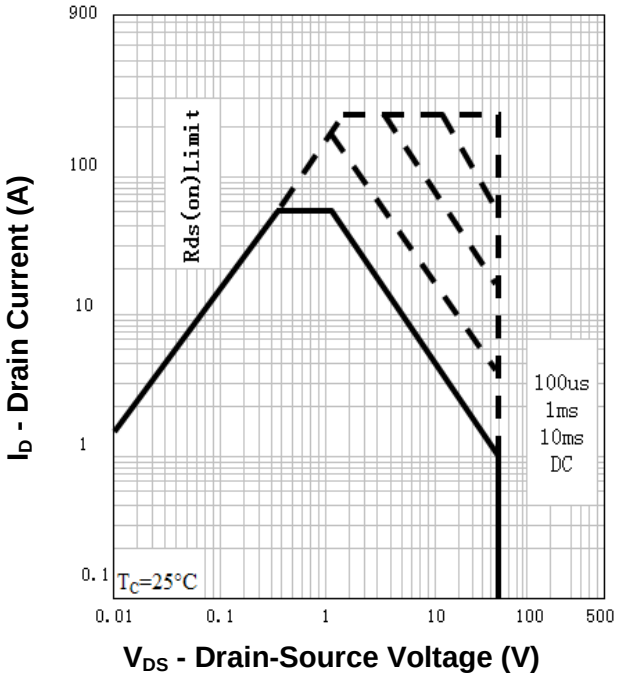
Power Dissipation



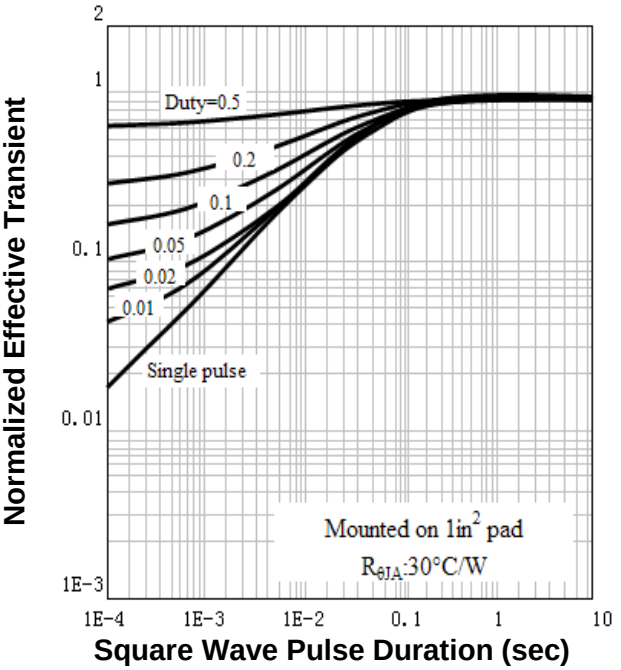
Drain Current



Safe Operation Area

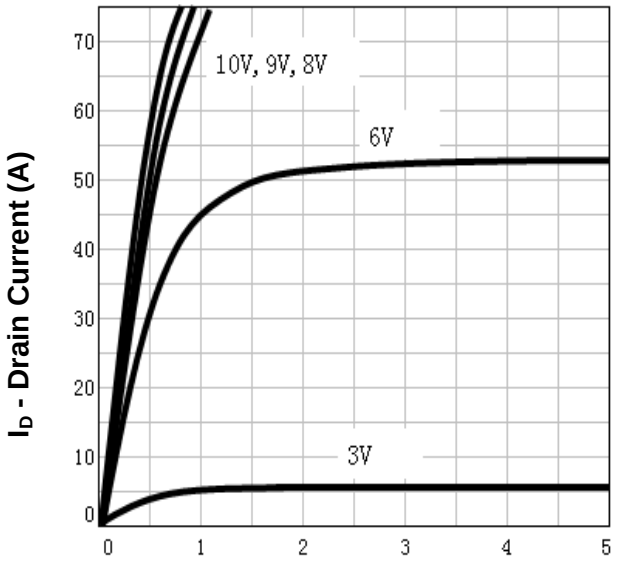


Thermal Transient Impedance

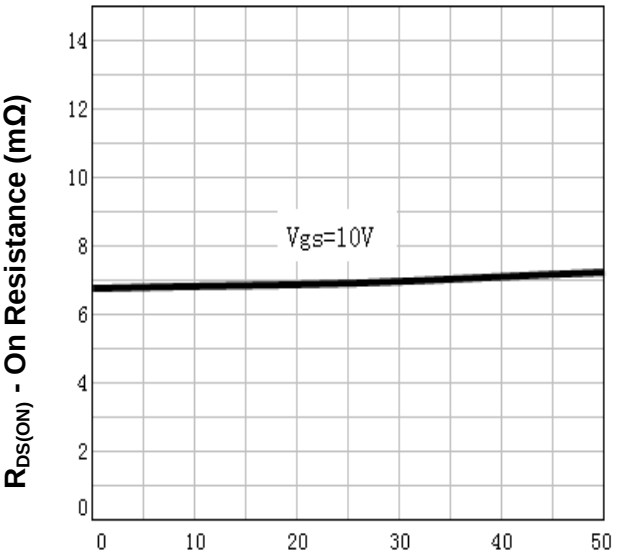


Typical Characteristics

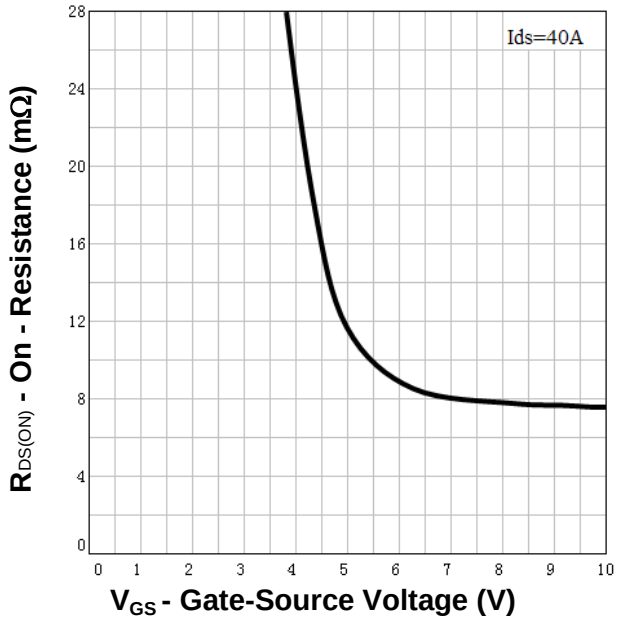
Output Characteristics



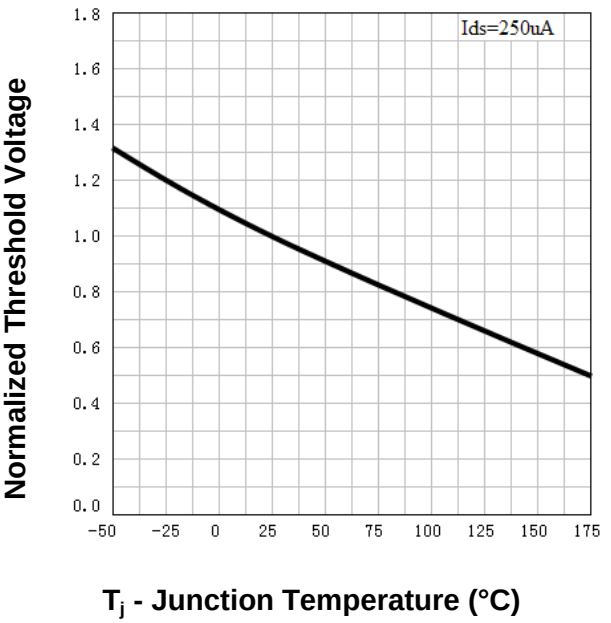
Drain-Source On Resistance



Drain-Source On Resistance

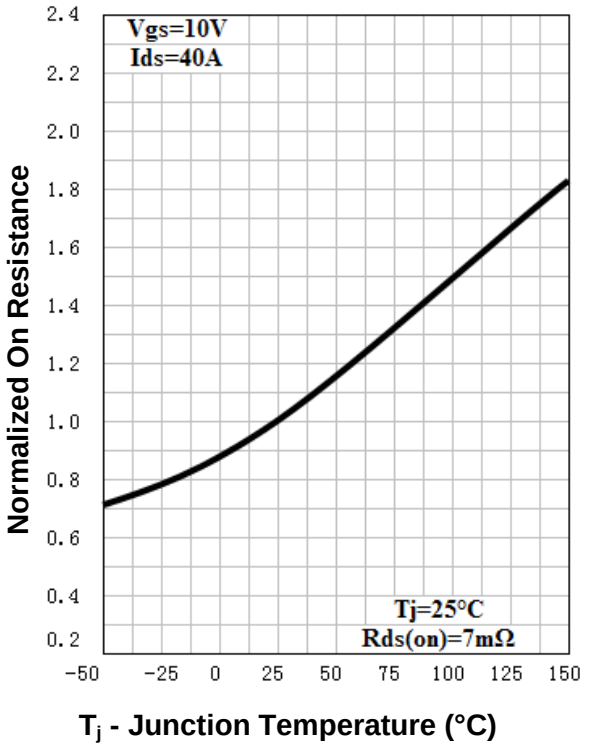


Gate Threshold Voltage



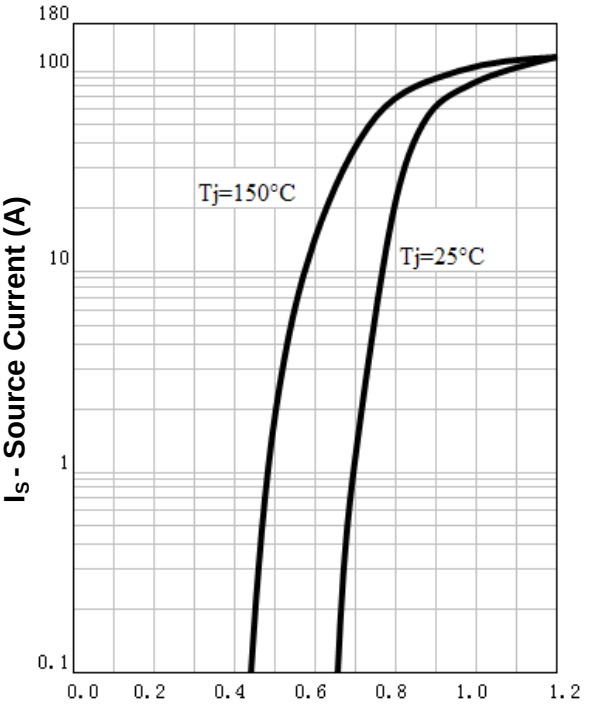
Typical Characteristics

Drain-Source On Resistance



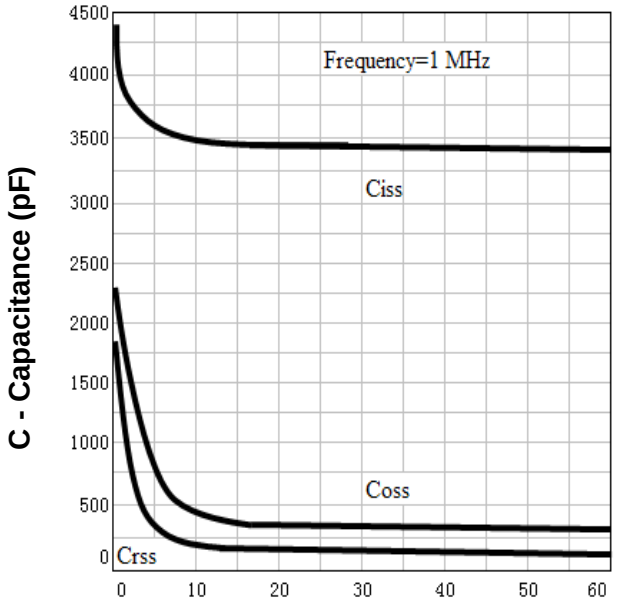
T_j - Junction Temperature (°C)

Source-Drain Diode Forward



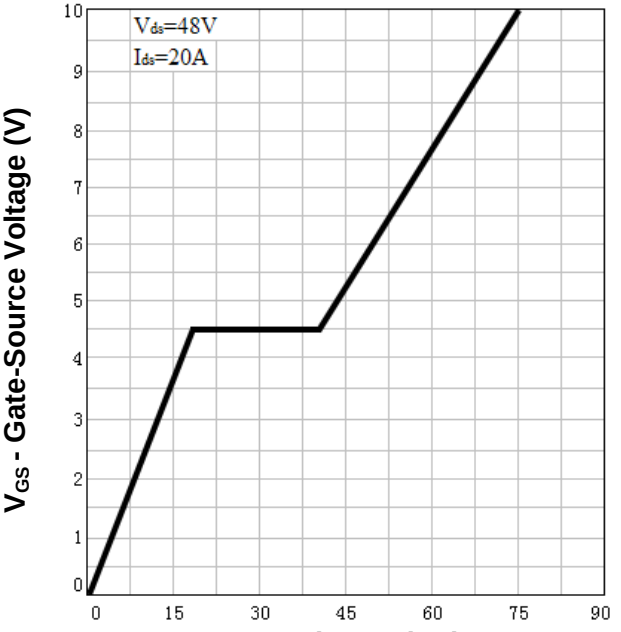
V_{SD} - Source-Drain Voltage (V)

Capacitance



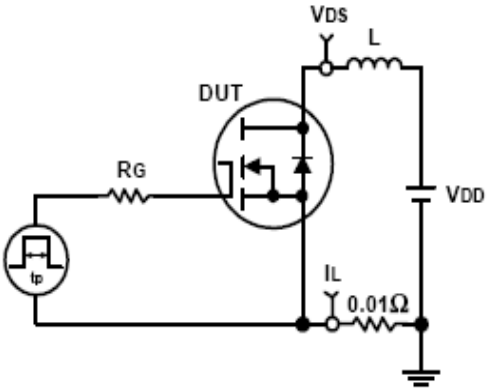
V_{DS} - Drain-Source Voltage (V)

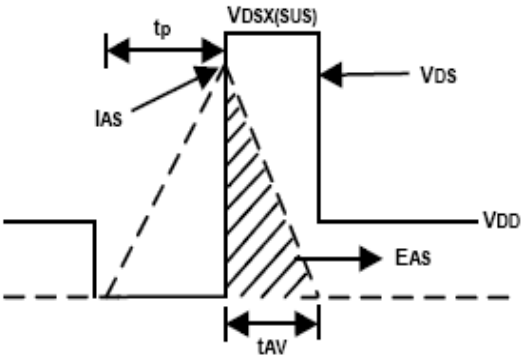
Gate Charge



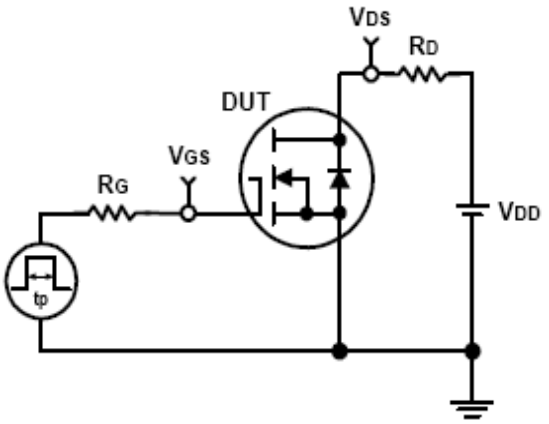
Q_G - Gate Charge (nC)

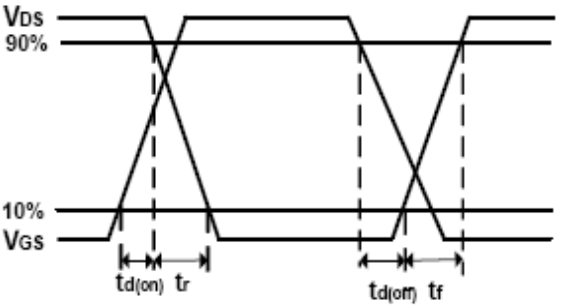
Avalanche Test Circuit and Waveforms





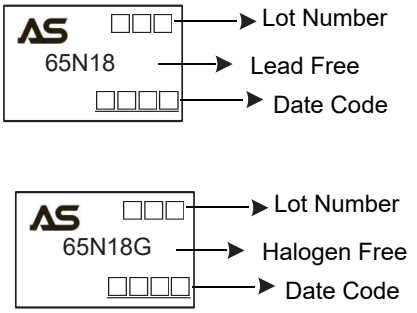
Switching Time Test Circuit and Waveforms



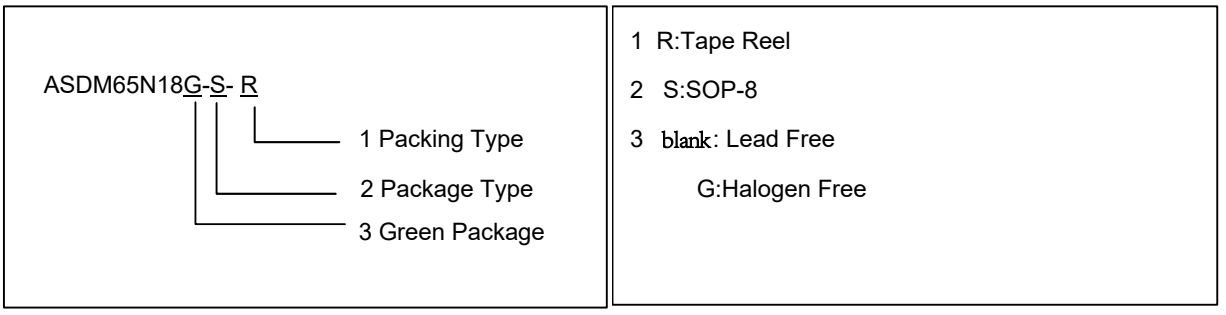


Ordering and Marking Information

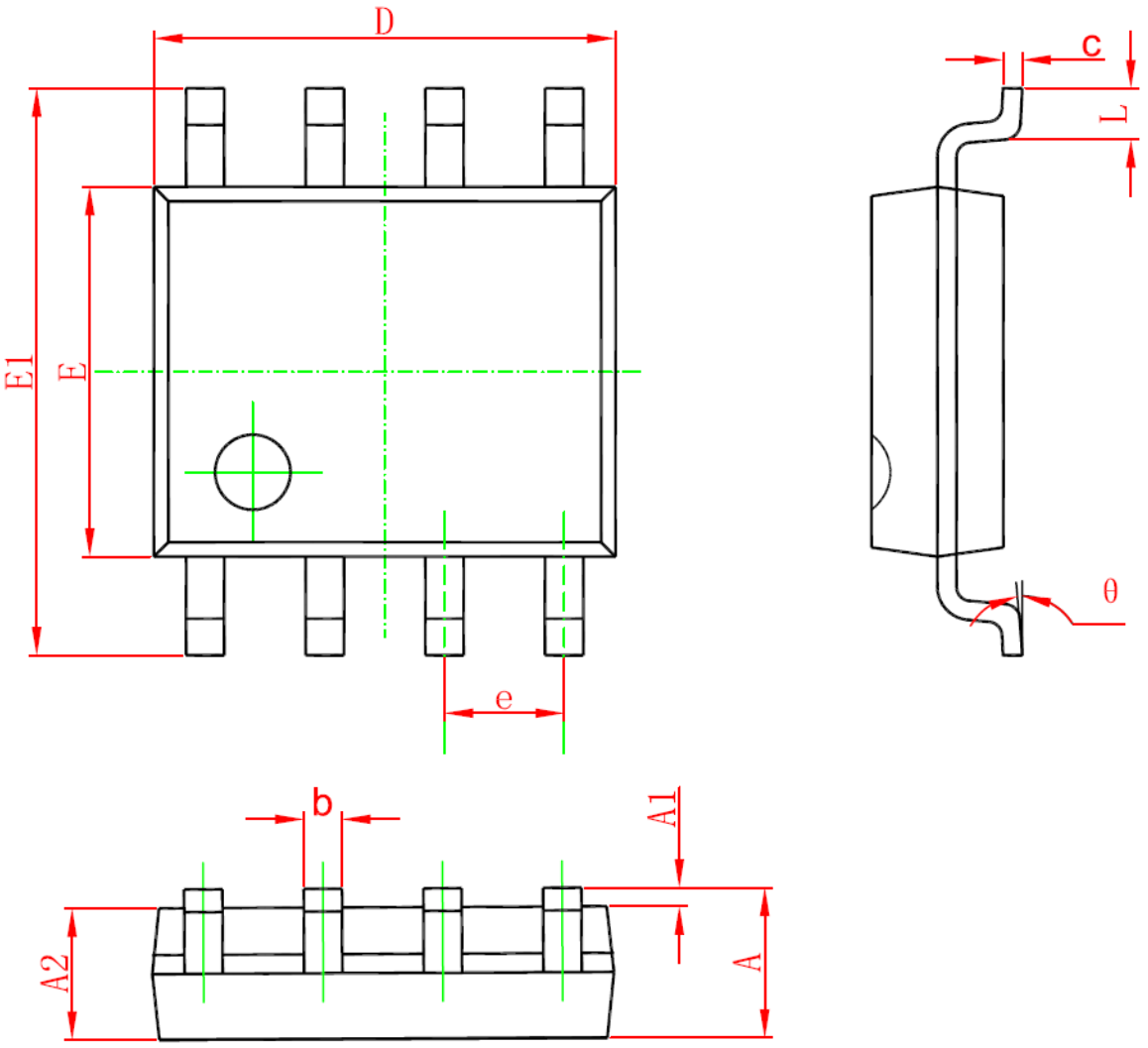
Device	Marking	Package	Packing	Quantity
ASDM65N18S	65N18	SOP-8	Tape&Reel	4000

PACKAGE	MARKING
SOP-8	

Ordering Number		Package
Lead Free	Halogen Free	
ASDM65N18-S-R	ASDM65N18G-S-R	SOP-8



SOP-8 PACKAGE IN FORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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