



Features

- Low Input Capacitance
- Low Miller Charge
- Low on-resistance $R_{DS(on)}$ @ $V_{GS}=4.5\text{ V}$
- Low Input/Output Leakage
- Pb-free lead plating; RoHS compliant
-

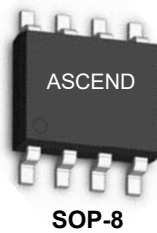
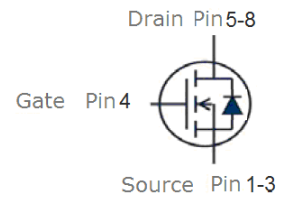
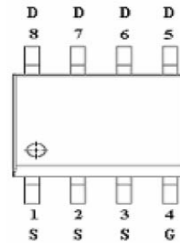
Application

- Motor / Body Load Control

Product Summary



V_{DS}	65	V
$R_{DS(on),Typ}$ @ $V_{GS}=10\text{ V}$	7.0	m Ω
I_D	18	A

top view**Simplified Outline**

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Value	Unit
Drain-Source Voltage	V_{DS}	65	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	$T_A=25^\circ\text{C}$	18	A
	$T_A=70^\circ\text{C}$	40	A
Drain Current-Pulsed ^{Note 1}	I_{DM}	65	A
Maximum Power Dissipation	$T_A=25^\circ\text{C}$	2.5	W
	$T_A=70^\circ\text{C}$	2.0	W
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$

Thermal Resistance Ratings

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

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	g _{fs}	V _{DD} =10V, I _{DD} =6A	-	11	-	S

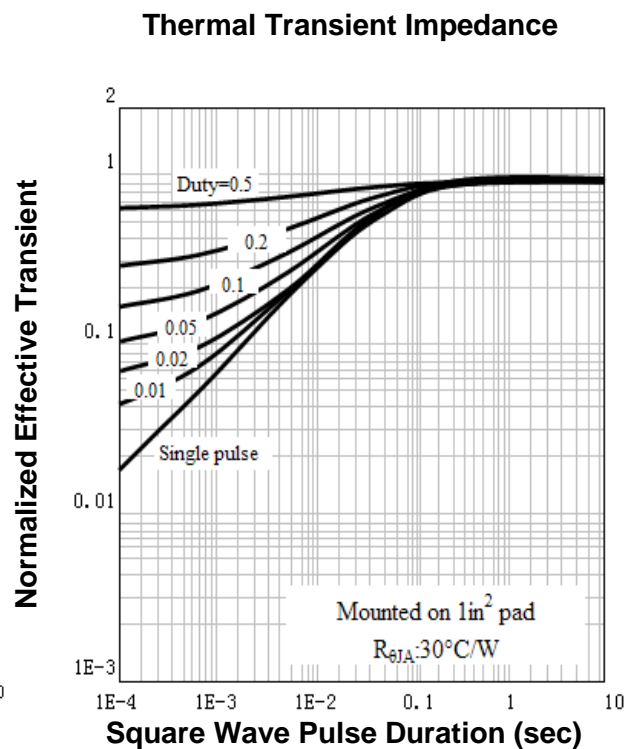
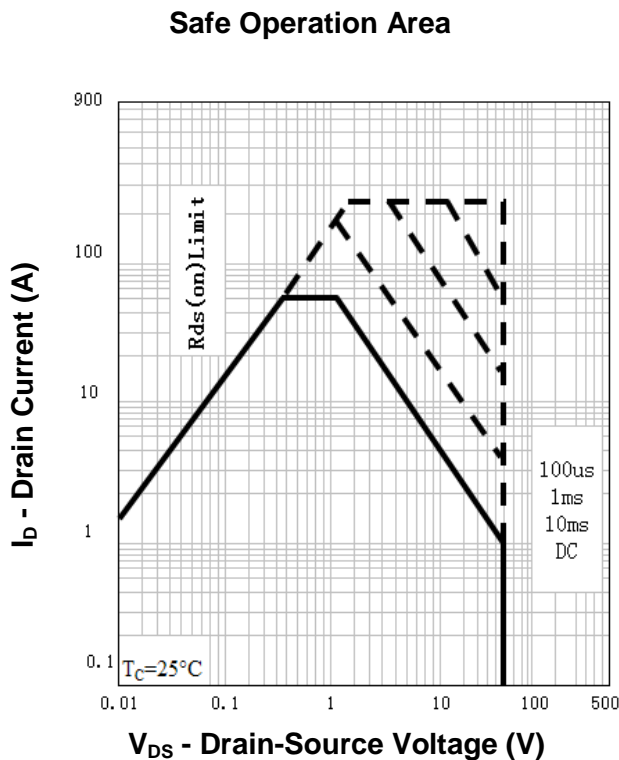
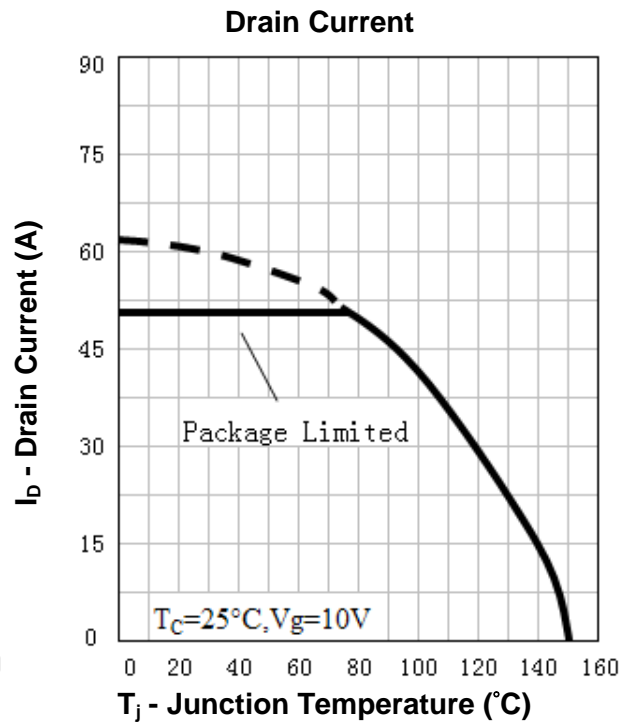
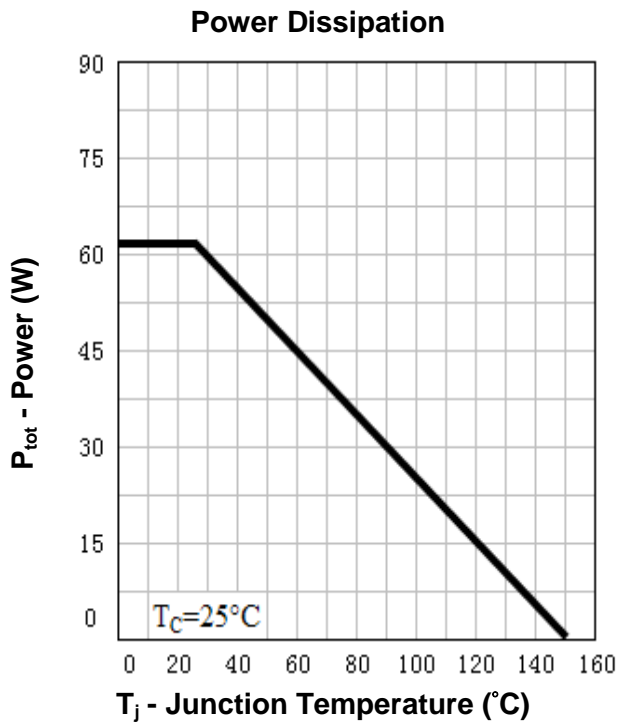
DYNAMIC CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz	-	3450	-	pF
Output Capacitance	C _{oss}		-	310	-	
Reverse Transfer Capacitance	C _{rss}		-	115	-	

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	R _g	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

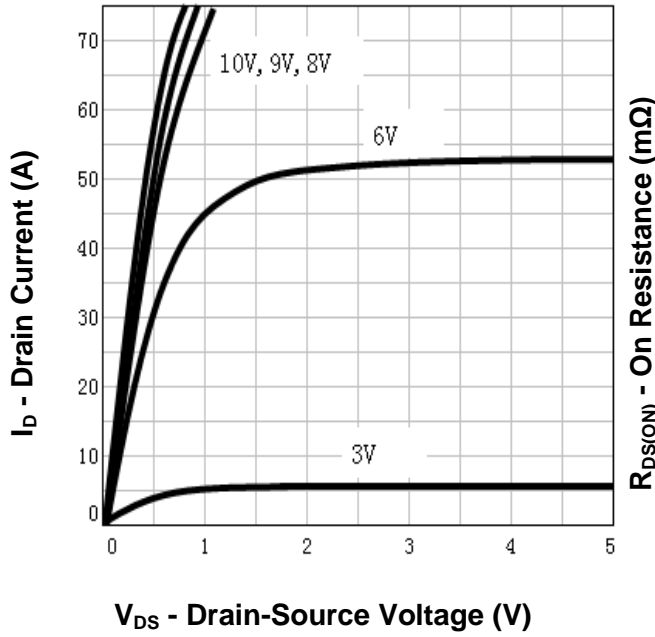
- Notes:**
- Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
 - R_{θJA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. R_{θJC} is guaranteed by design while R_{θCA} is determined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

Typical Characteristics

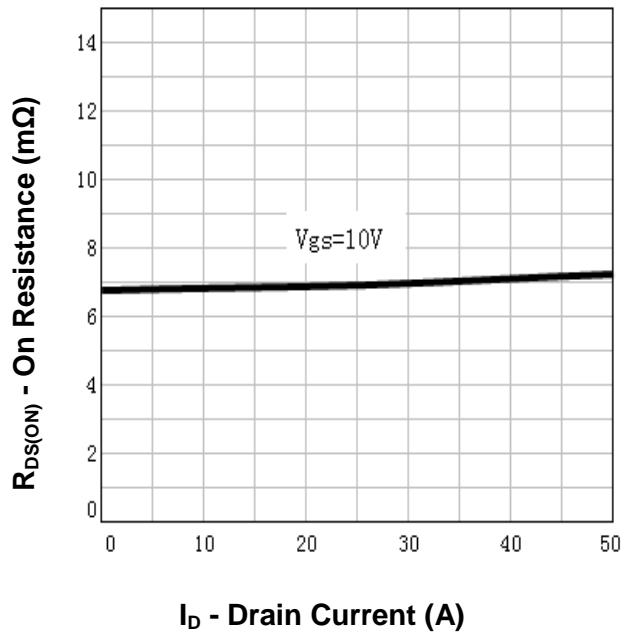


Typical Characteristics

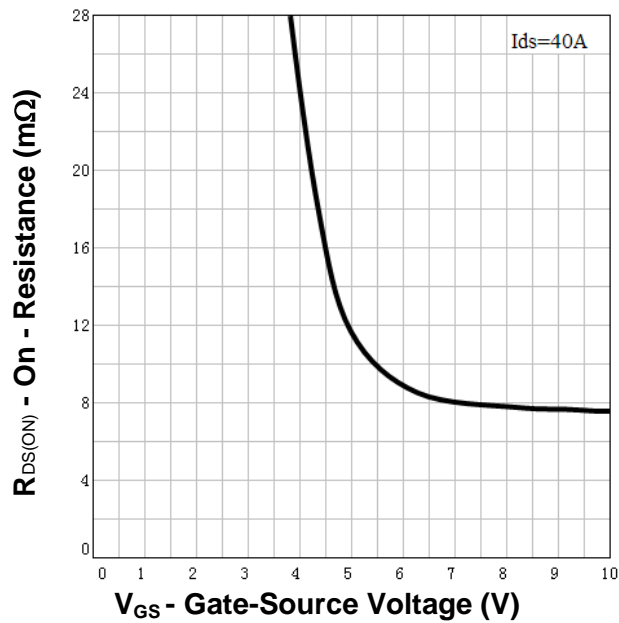
Output Characteristics



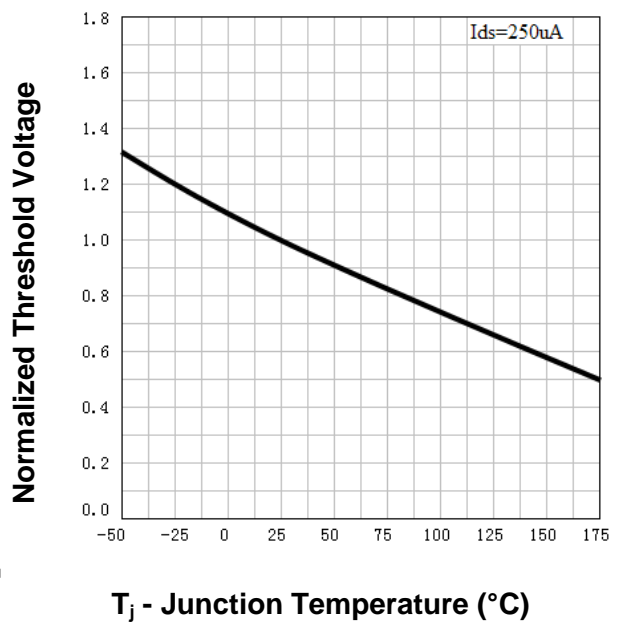
Drain-Source On Resistance



Drain-Source On Resistance

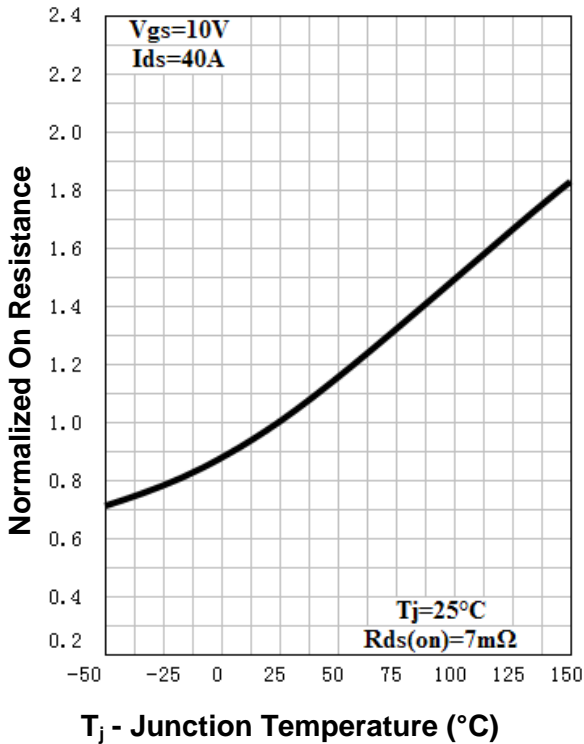


Gate Threshold Voltage

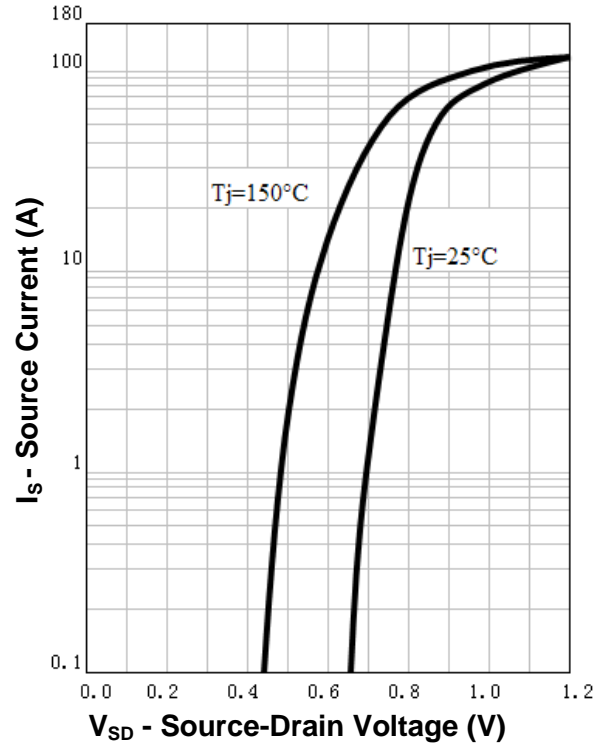


Typical Characteristics

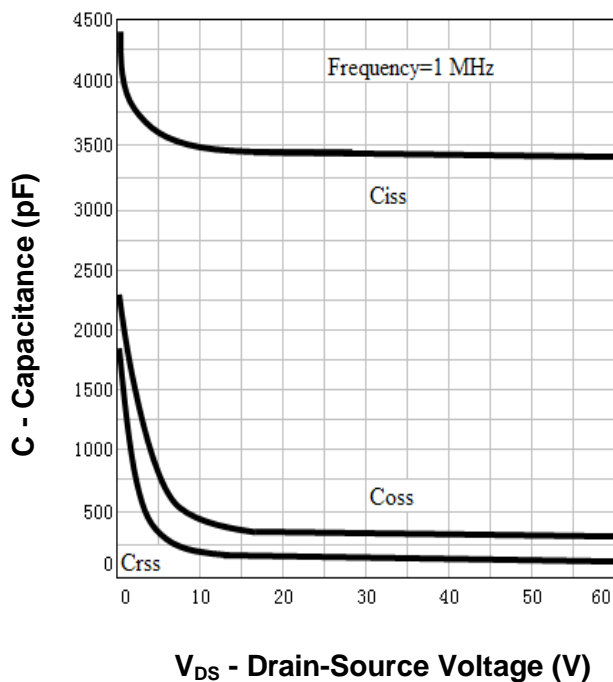
Drain-Source On Resistance



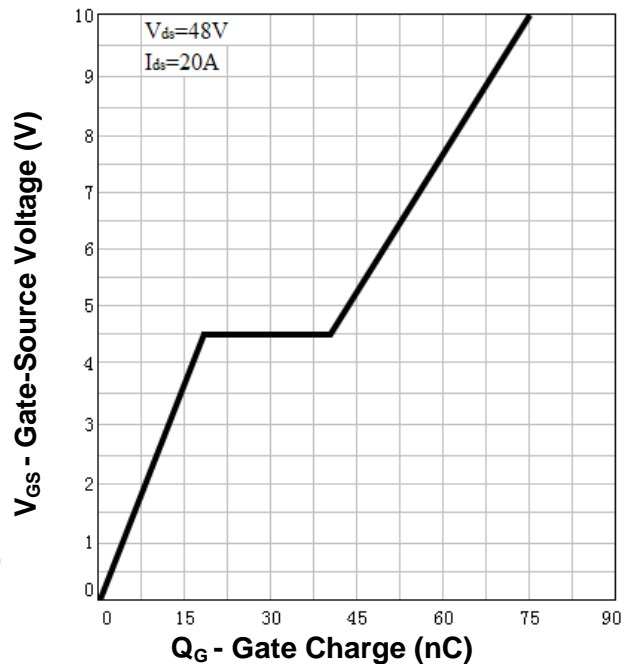
Source-Drain Diode Forward



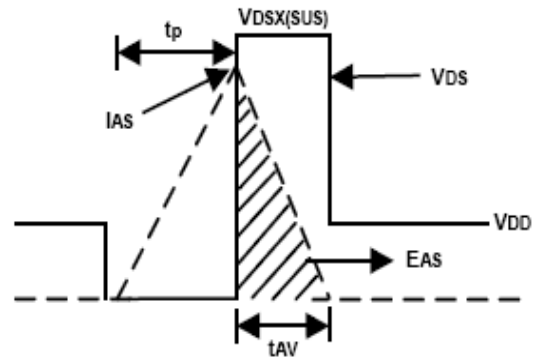
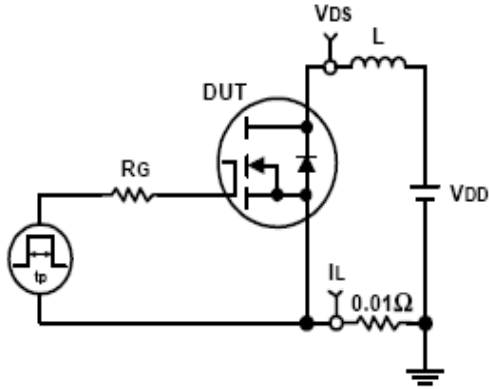
Capacitance



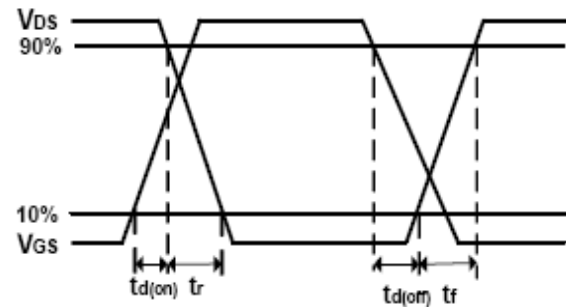
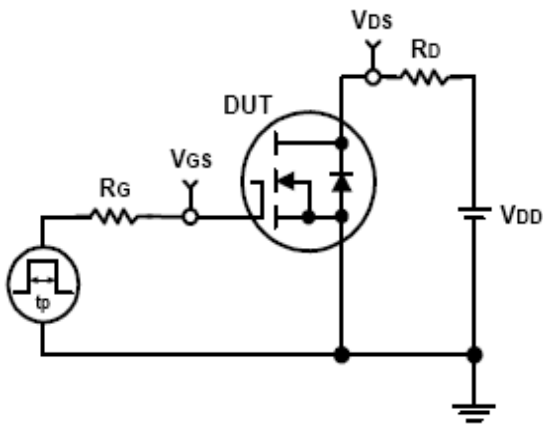
Gate Charge



Avalanche Test Circuit and Waveforms

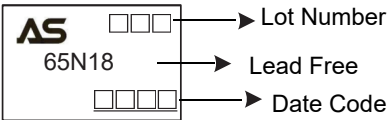
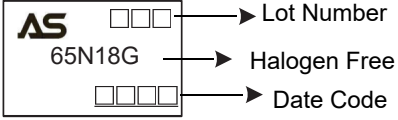


Switching Time Test Circuit and Waveforms



Ordering and Marking Information

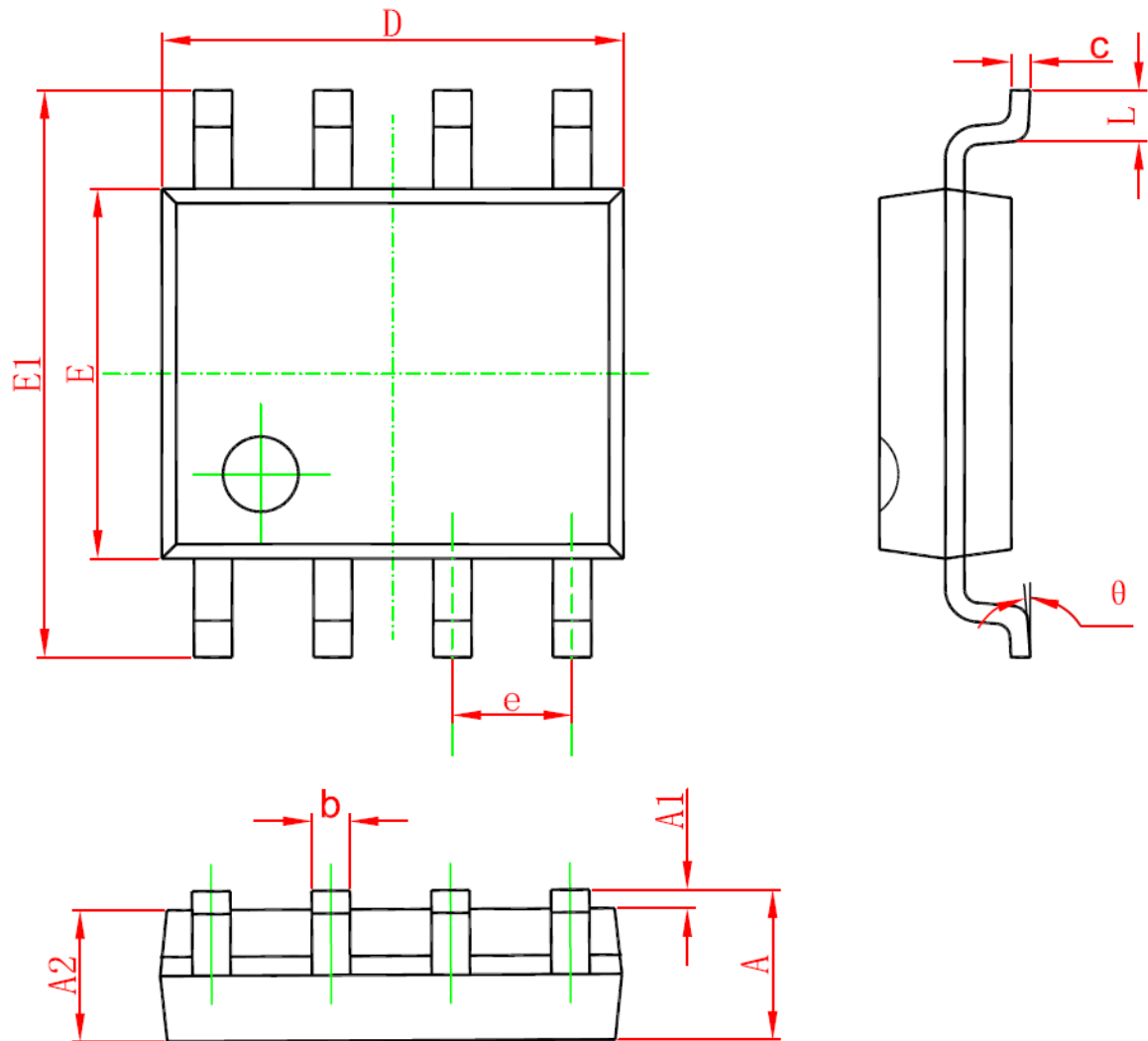
Device	Marking	Package	Packing	Quantity
ASDM65N18S	65N18	SOP-8	Tape&Reel	4000

PACKAGE	MARKING
SOP-8	 <p>AS □□□ → Lot Number 65N18 → Lead Free □□□□ → Date Code</p>  <p>AS □□□ → Lot Number 65N18G → Halogen Free □□□□ → Date Code</p>

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

<p>ASDM65N18<u>G</u>-<u>S</u>-<u>R</u></p> <p>1 Packing Type</p> <p>2 Package Type</p> <p>3 Green Package</p>	<p>1 R:Tape Reel</p> <p>2 S:SOP-8</p> <p>3 blank: Lead Free</p> <p>G:Halogen Free</p>
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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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