

Features

- 16V/60A,
 $R_{DS(ON)} = 4.3m\Omega(Typ.)@V_{GS}=4.5V$
 $R_{DS(ON)} = 4.5m\Omega(Typ.)@V_{GS}=3.8V$
 $R_{DS(ON)} = 4.8m\Omega(Typ.)@V_{GS}=3.1V$
 $R_{DS(ON)} = 5.3m\Omega(Typ.)@V_{GS}=2.5V$
 $R_{DS(ON)} = 9m\Omega(Typ.)@V_{GS}=1.8V$
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- ESD Protected (HBM>2000V)

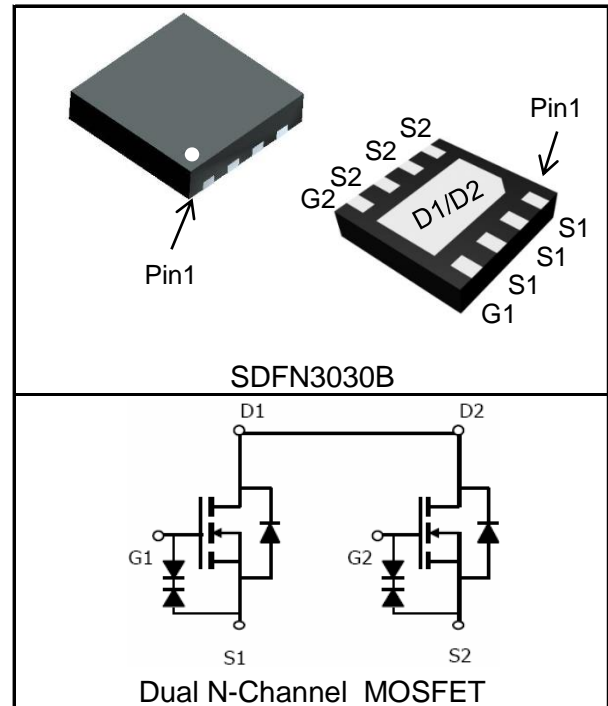
Applications

- Power Management
- Battery Protection



Halogen-Free

Pin Description



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^\circ C$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	16	V
V_{GSS}	Gate-Source Voltage	± 10	V
T_J	Maximum Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
I_S	Diode Continuous Forward Current	$T_C=25^\circ C$ 60	A
Mounted on Large Heat Sink			
$I_{DP}^{①}$	300 μs Pulse Drain Current Tested	$T_C=25^\circ C$ 240	A
$I_D^{②}$	Continuous Drain Current@ $T_C(V_{GS}=4.5V)$	$T_C=25^\circ C$ 60	A
		$T_C=100^\circ C$ 38	
	Continuous Drain Current@ $T_A(V_{GS}=4.5V)^{③}$	$T_A=25^\circ C$ 20	
		$T_A=70^\circ C$ 16	
P_D	Maximum Power Dissipation@ T_C	$T_C=25^\circ C$ 30	W
		$T_C=100^\circ C$ 12	
	Maximum Power Dissipation@ $T_A^{③}$	$T_A=25^\circ C$ 3.6	
		$T_A=70^\circ C$ 2.3	

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	4.1	°C/W
$R_{\theta JA}$ ^③	Thermal Resistance-Junction to Ambient	35	°C/W
Drain-Source Avalanche Ratings			
E_{AS} ^④	Avalanche Energy, Single Pulsed	49	mJ

Electrical Characteristics ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

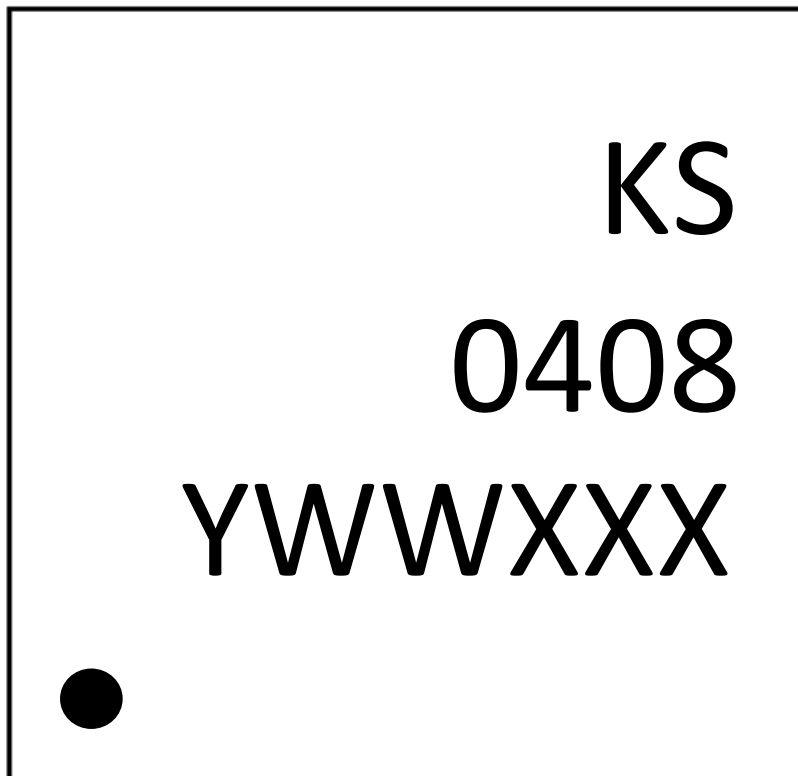
Symbol	Parameter	Test Condition	KS0408UA3			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	16			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$			1	μA
		$T_J=125^\circ C$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.5	0.7	1	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 10V, V_{DS}=0V$			± 10	μA
$R_{DS(ON)}$ ^⑤	Drain-Source On-state Resistance	$V_{GS}=4.5V, I_{DS}=3A$	3	4.3	5	$m\Omega$
		$V_{GS}=3.8V, I_{DS}=3A$	3.5	4.5	5.5	$m\Omega$
		$V_{GS}=3.1V, I_{DS}=3A$	3.5	4.8	6	$m\Omega$
		$V_{GS}=2.5V, I_{DS}=3A$	4	5.3	6.5	$m\Omega$
		$V_{GS}=1.8V, I_{DS}=3A$	7	9	11	$m\Omega$
Diode Characteristics						
V_{SD} ^⑤	Diode Forward Voltage	$I_{SD}=3A, V_{GS}=0V$		0.76	1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=3A, dI_{SD}/dt=100A/\mu s$		18		ns
Q_{rr}	Reverse Recovery Charge			27		nC
Dynamic Characteristics ^⑥						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$		1		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=8V,$ Frequency=1.0MHz		3180		pF
C_{oss}	Output Capacitance			400		
C_{riss}	Reverse Transfer Capacitance			335		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=8V, I_{DS}=3A,$ $V_{GS}=4.5V, R_G=6\Omega$		11		ns
t_r	Turn-on Rise Time			19		
$t_{d(OFF)}$	Turn-off Delay Time			28		
t_f	Turn-off Fall Time			13		
Gate Charge Characteristics ^⑥						
Q_g	Total Gate Charge	$V_{DS}=8V, V_{GS}=4.5V,$ $I_{DS}=3A$		39		nC
Q_{gs}	Gate-Source Charge			5.4		
Q_{gd}	Gate-Drain Charge			13.8		

Notes:

- ①Pulse width limited by safe operating area.
- ②Calculated continuous current based on maximum allowable junction temperature.
- ③When mounted on 1 inch square copper board, $t \leq 10\text{sec}$.
- ④Limited by $T_{J\text{max}}$, $I_{AS} = 14\text{A}$, $L = 0.5\text{mH}$, $V_{DD} = 10\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$.
- ⑤Pulse test; Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
- ⑥Guaranteed by design, not subject to production testing.

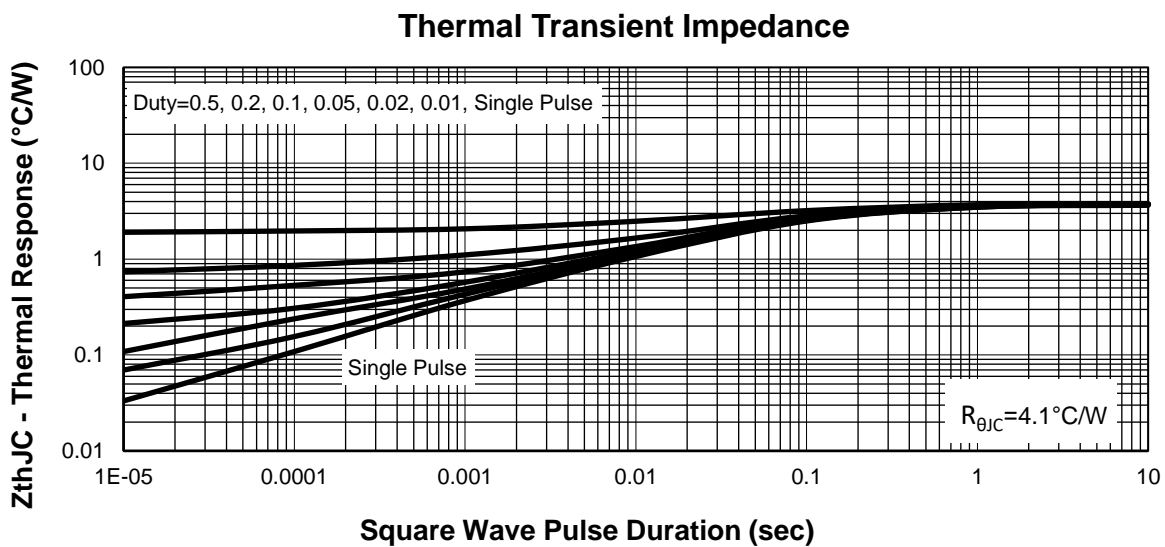
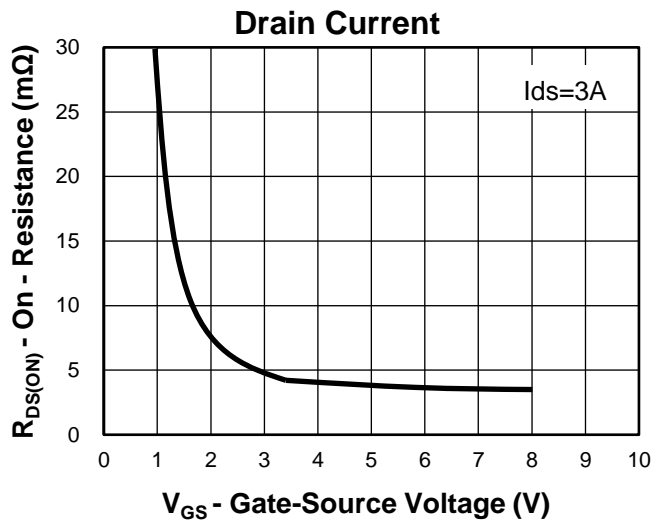
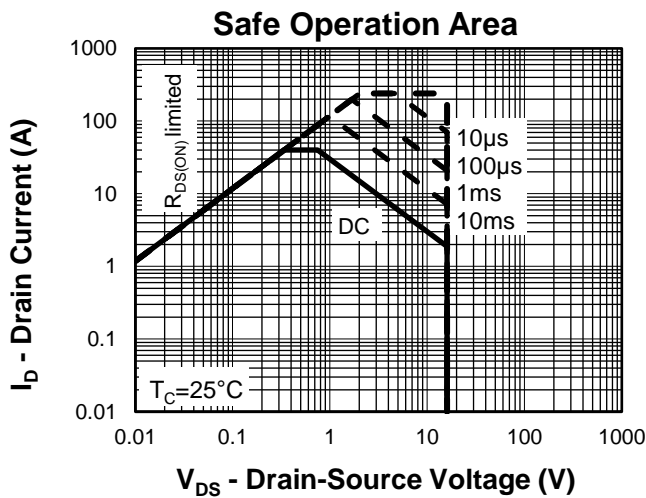
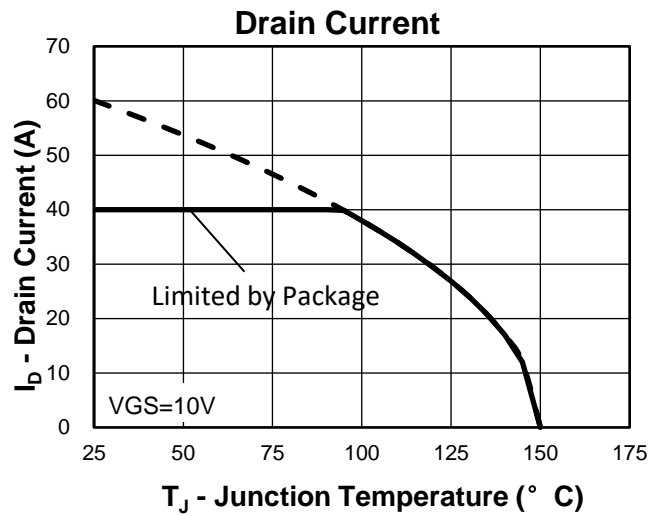
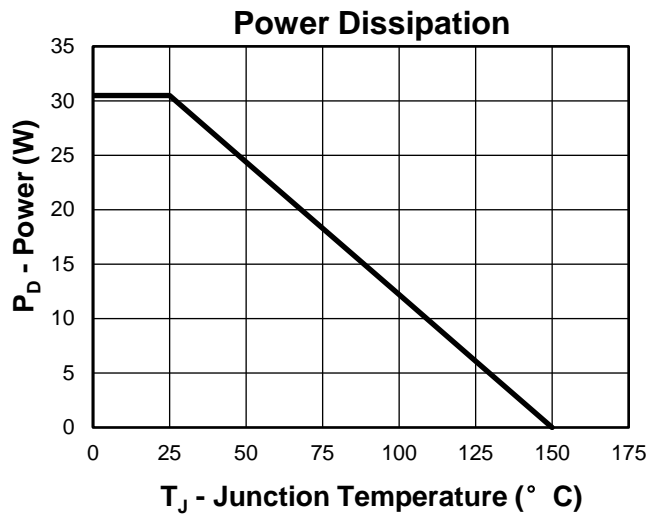
Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KS0408UA3	SDFN3030B	Tape&Reel	5000	13"	12mm

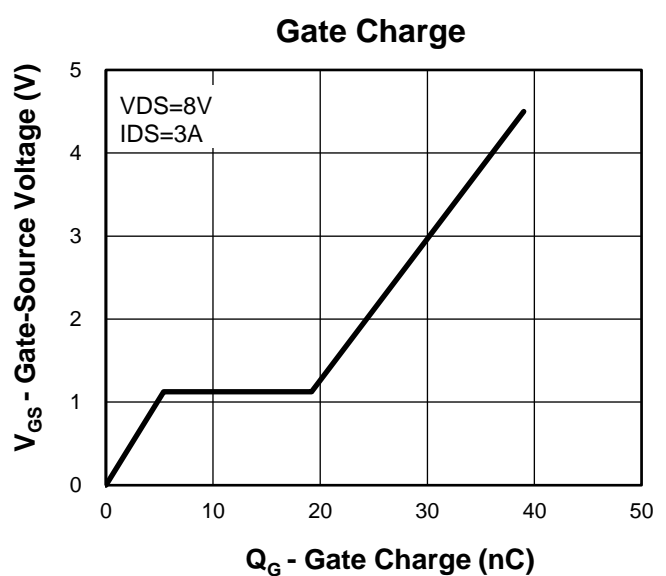
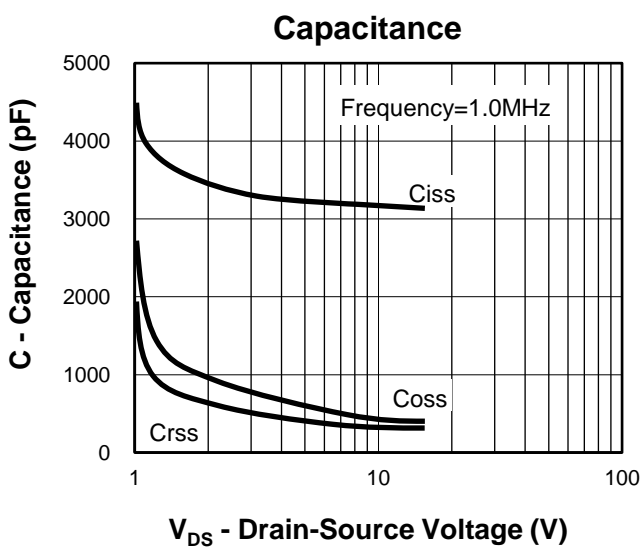
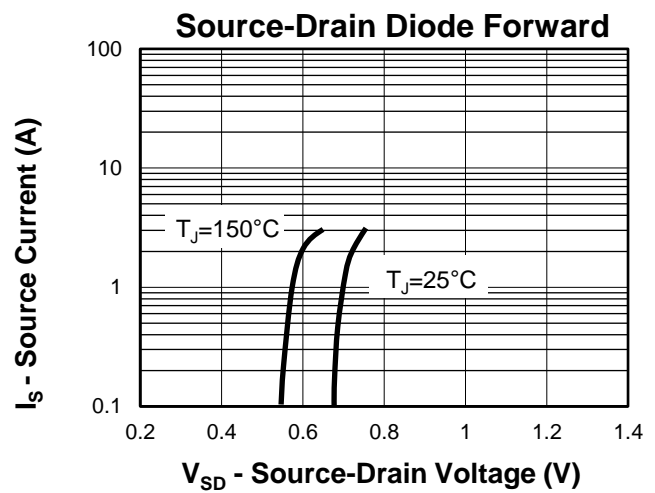
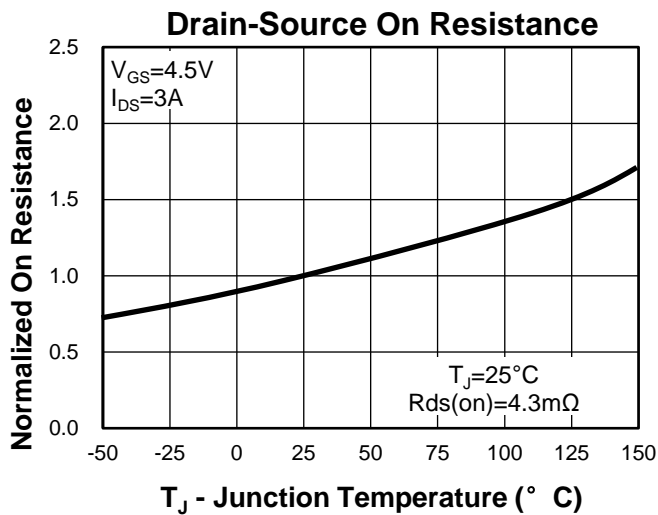
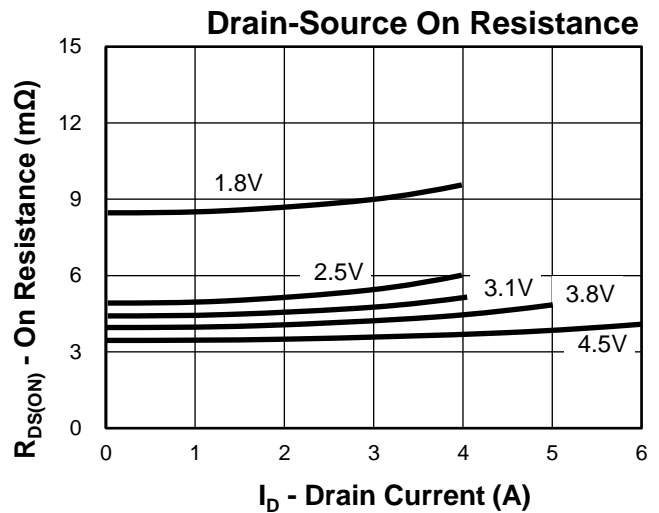
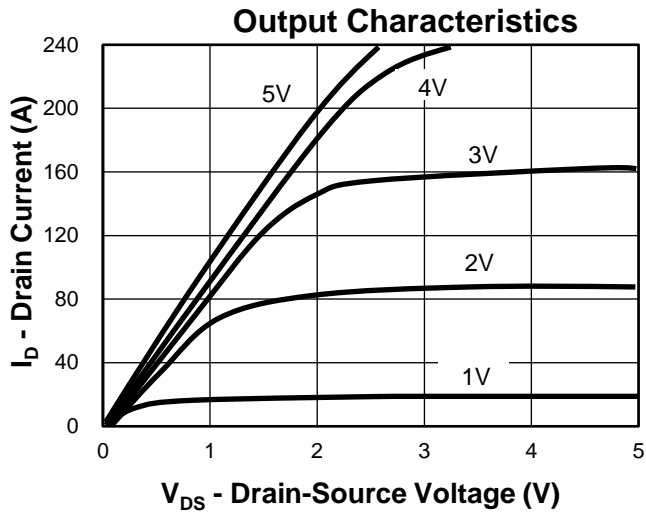


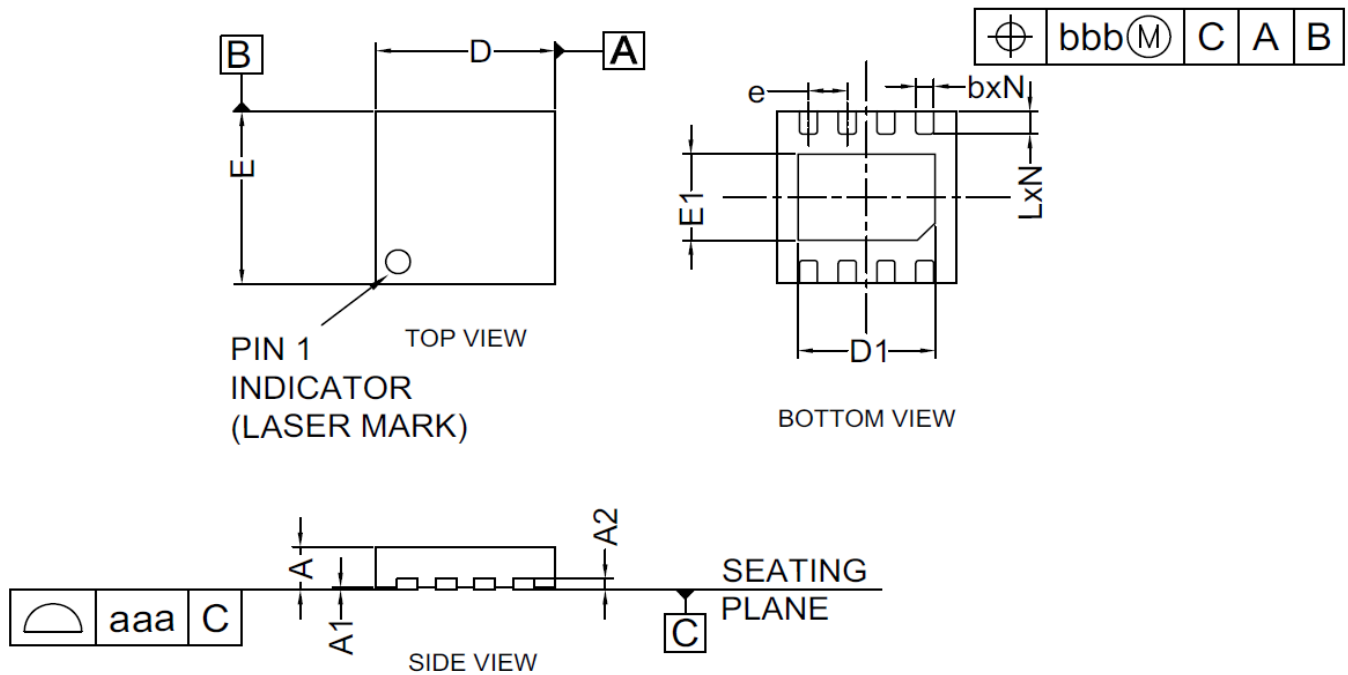
Y =Year,2017-A,2018-B,etc.
WW =Week.
XXX =Lot number.

Typical Characteristics



Typical Characteristics



Package Information
SDFN3030B


SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.75	0.80	0.028	0.030	0.031
A1	0.00	0.02	0.05	0.000	0.001	0.002
A2	0.203 REF			0.008 REF		
b	0.25	0.30	0.35	0.010	0.012	0.014
D	2.90	3.00	3.10	0.114	0.118	0.122
D1	2.20	2.30	2.40	0.087	0.091	0.094
E	2.90	3.00	3.10	0.114	0.118	0.122
E1	1.40	1.50	1.60	0.055	0.059	0.063
e	0.65 BSC			0.026 BSC		
L	0.35	0.40	0.45	0.014	0.016	0.018
K	0.20	-	-	0.008	-	-
aaa	0.08 REF			0.003 REF		
bbb	0.10 REF			0.004 REF		

Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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