

Features

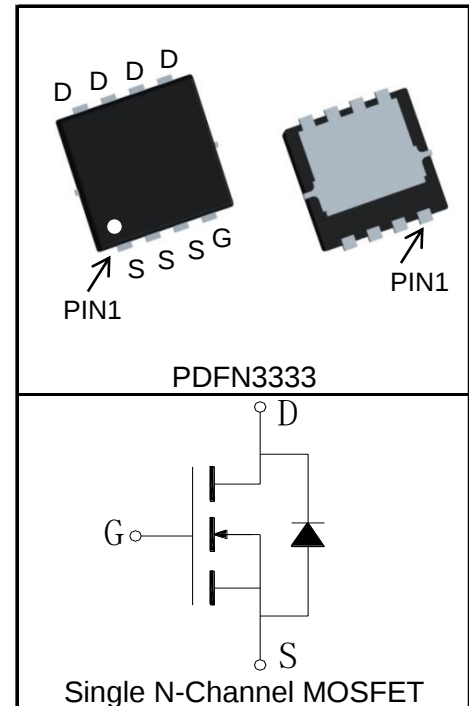
- 30V/50A,
 $R_{DS(ON)} = 7m\Omega(Typ.)@V_{GS}=10V$
 $R_{DS(ON)} = 10m\Omega(Typ.)@V_{GS}=4.5V$
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- Fast Switching Speed
- 100% avalanche tested

Applications

- Switching Application Systems



Pin Description



Absolute Maximum Ratings

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

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	4.1	$^{\circ}\text{C/W}$
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	35	$^{\circ}\text{C/W}$
Drain-Source Avalanche Ratings			
$E_{AS}^{④}$	Avalanche Energy, Single Pulsed	20	mJ

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

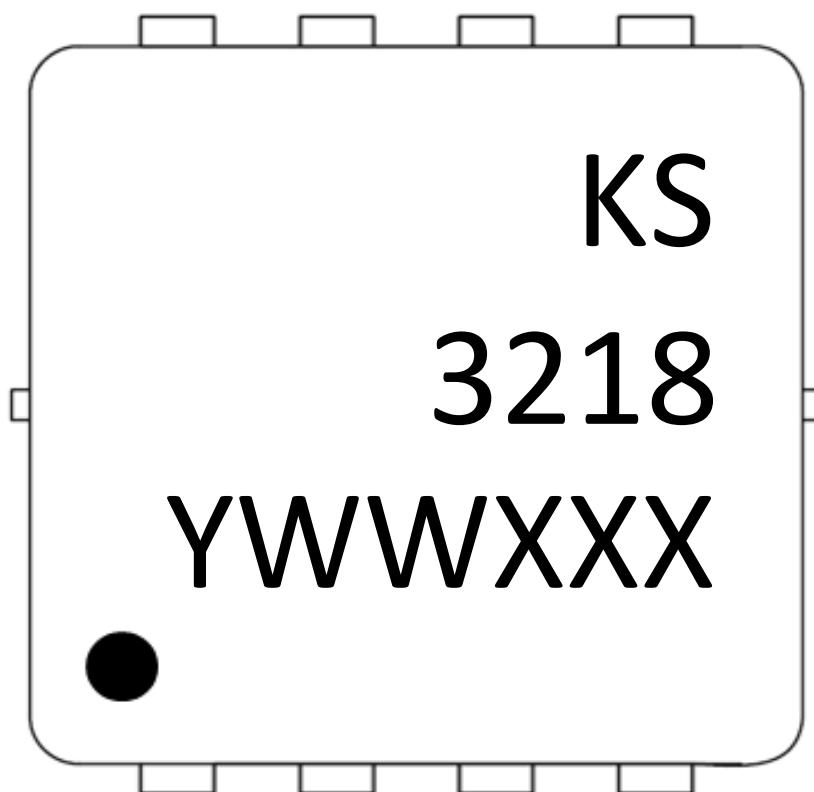
Symbol	Parameter	Test Condition	KS3218MB			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	μA
		T _J =125°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.2	1.7	2.3	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
R _{DS(ON)} ⑤	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =20A		7	9	mΩ
		V _{GS} =4.5V, I _{DS} =16A		10	14	mΩ
Diode Characteristics						
V _{SD} ⑤	Diode Forward Voltage	I _{SD} =20A, V _{GS} =0V		0.88	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =20A, dI _{SD} /dt=100A/μs		23		ns
Q _{rr}	Reverse Recovery Charge			32		nC
Dynamic Characteristics ⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		2		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz		1015		pF
C _{oss}	Output Capacitance			170		
C _{rss}	Reverse Transfer Capacitance			115		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, I _{DS} =20A, V _{GS} =10V, R _G =6Ω		12		ns
t _r	Turn-on Rise Time			18		
t _{d(OFF)}	Turn-off Delay Time			35		
t _f	Turn-off Fall Time			10		
Gate Charge Characteristics ⑥						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =20A		22		nC
Q _{gs}	Gate-Source Charge			6		
Q _{gd}	Gate-Drain Charge			8		

Notes:

- ①Pulse width limited by safe operating area.
- ②Calculated continuous current based on maximum allowable junction temperature. The package limitation current is 40A.
- ③When mounted on 1 inch square copper board, $t \leq 10\text{sec}$.
- ④Limited by T_{Jmax} , $I_{AS} = 9A$, $L = 0.5mH$, $V_{DD} = 15V$, $R_G = 25\Omega$, Starting $T_J = 25^\circ C$.
- ⑤Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- ⑥Guaranteed by design, not subject to production testing.

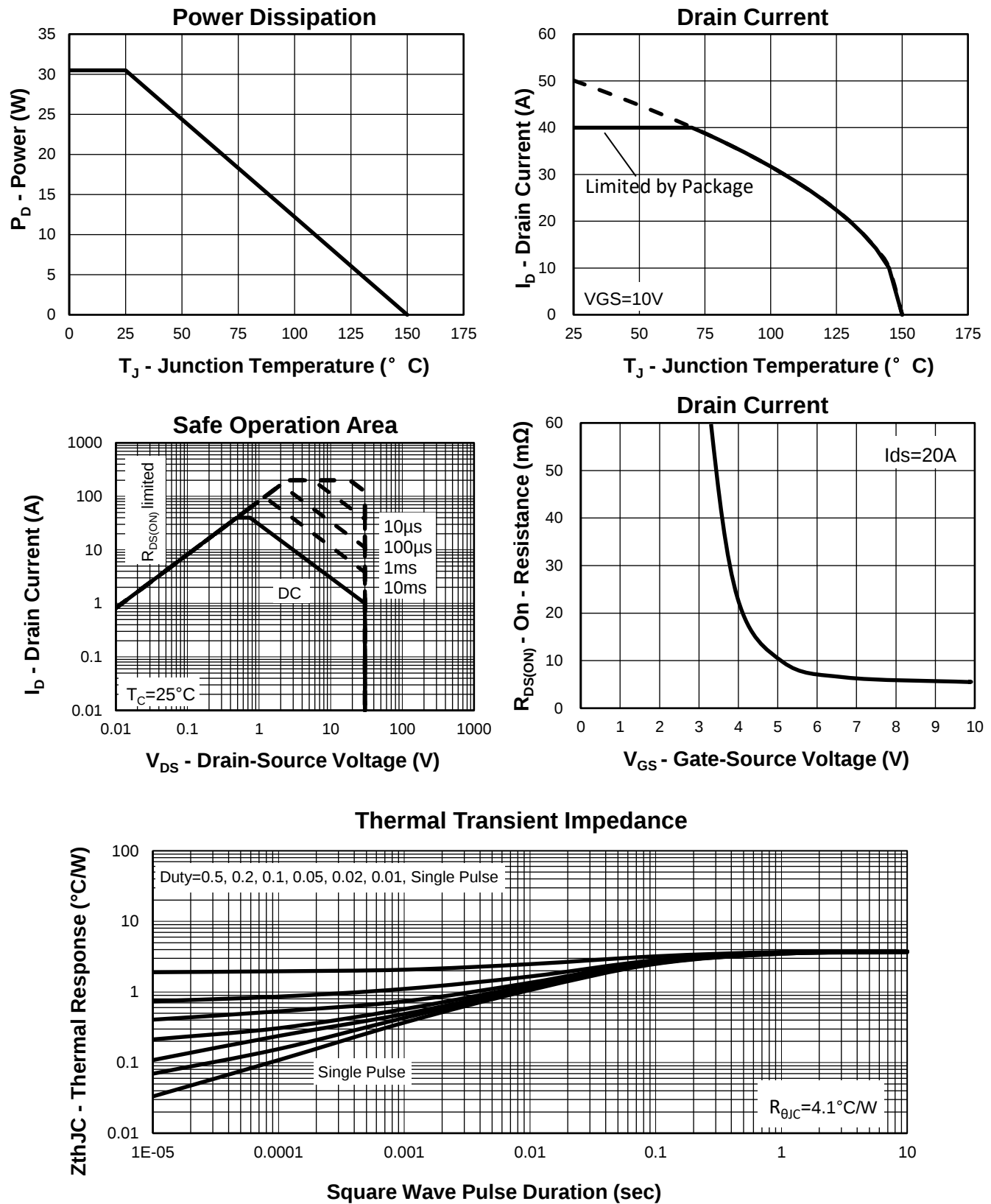
Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KS3218MB	PDFN3333	Tape&Reel	5000	13"	12mm

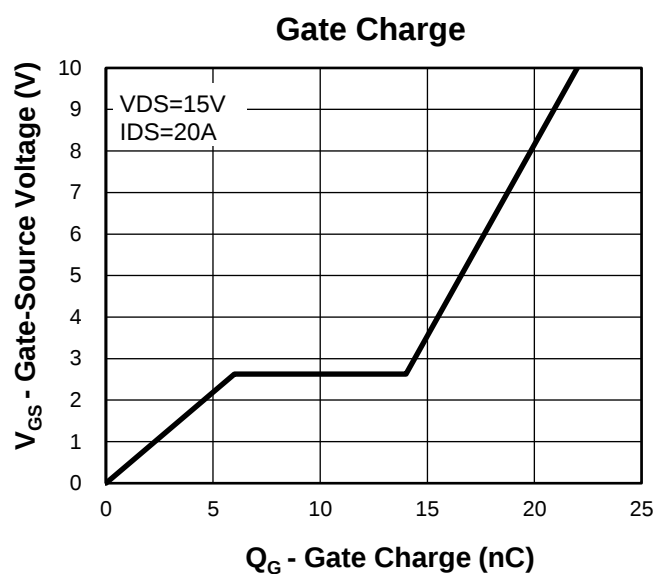
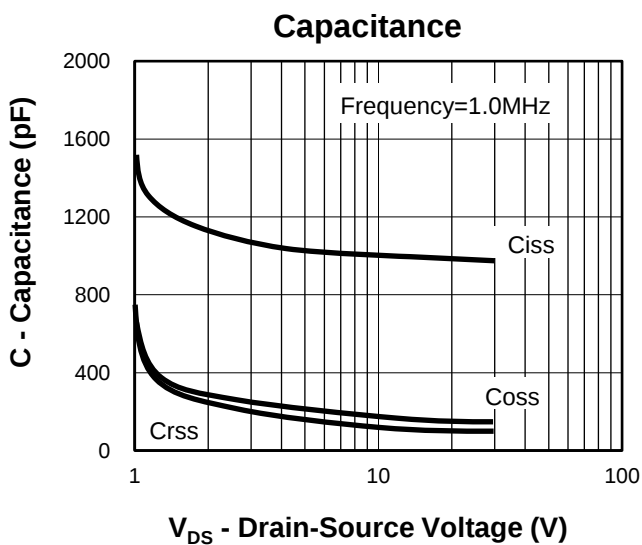
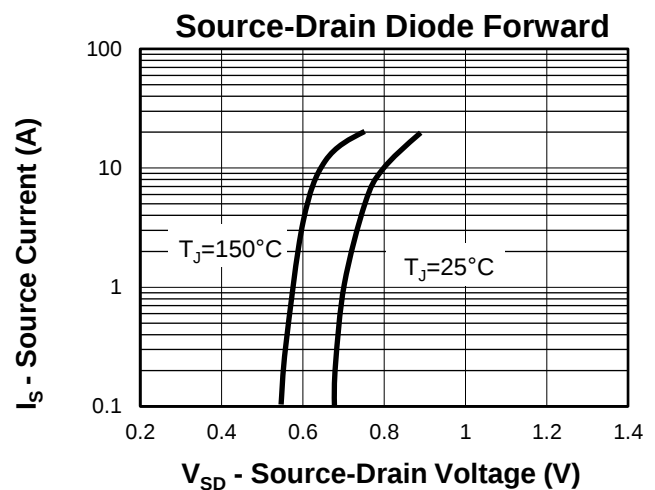
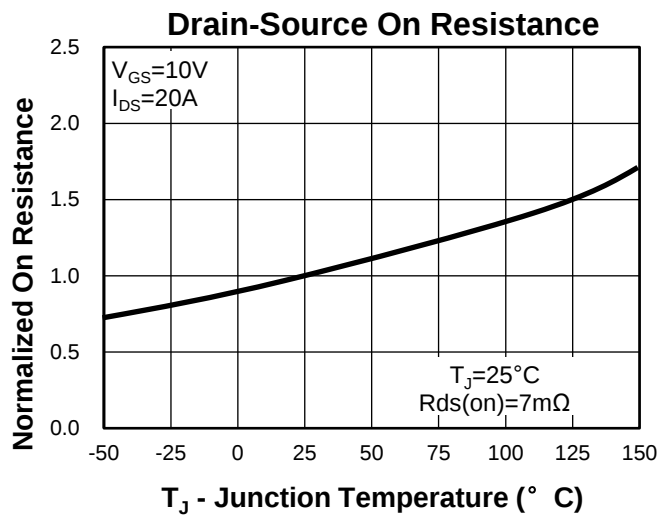
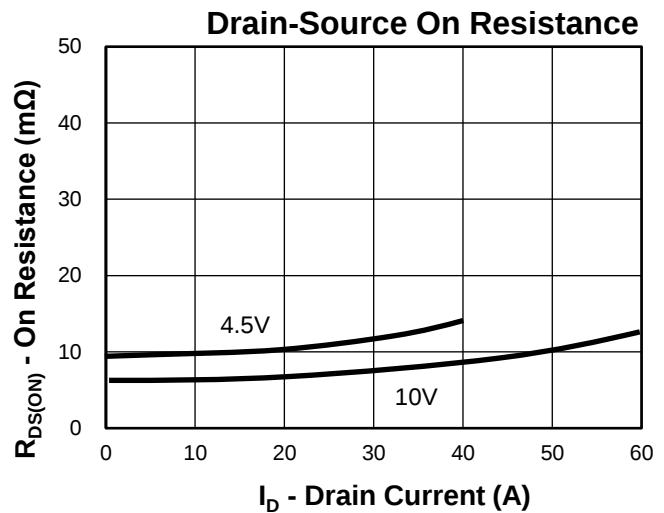
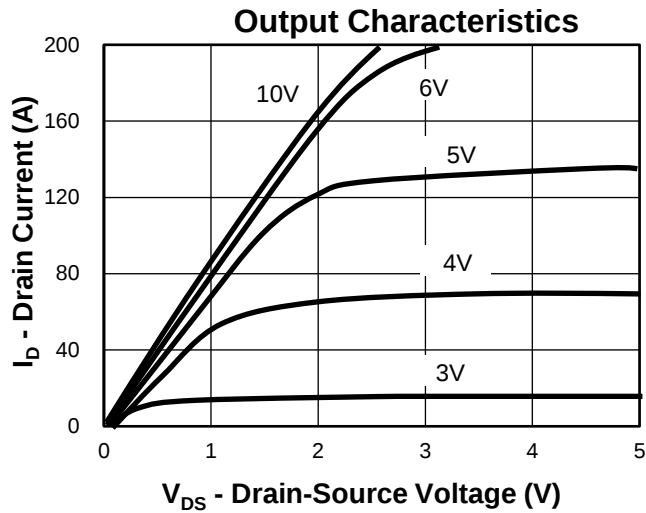


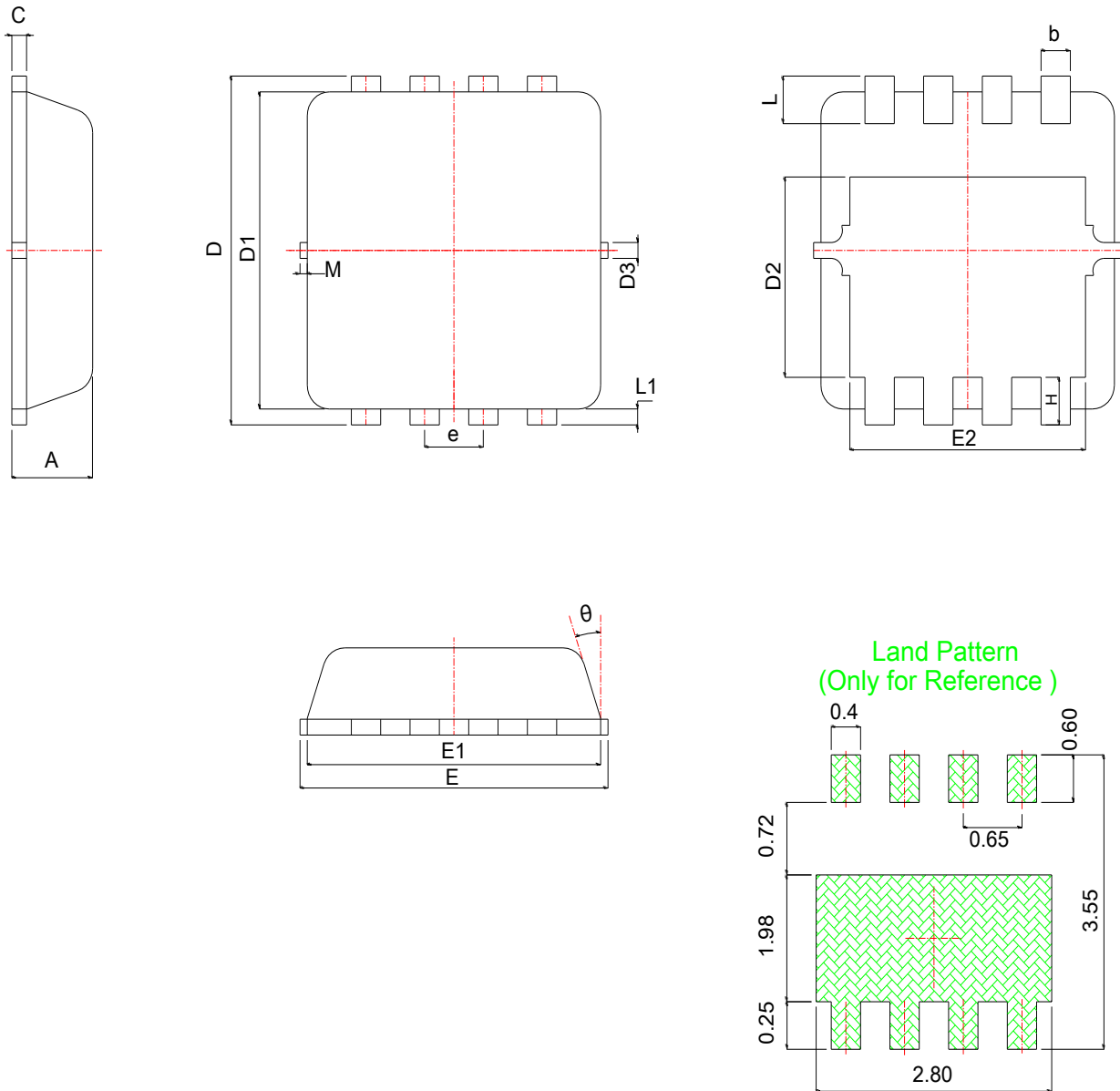
Y =Year,2017-A,2018-B,etc.
 WW =Week.
 XXX =Lot number.

Typical Characteristics



Typical Characteristics



Package Information
PDFN3333


SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	0.67	0.78	0.88	0.026	0.031	0.035	E1	3.05	3.15	3.25	0.120	0.124	0.128
b	0.25	0.30	0.35	0.010	0.012	0.014	E2	2.25	2.45	2.65	0.089	0.096	0.104
c	0.10	0.15	0.25	0.004	0.006	0.010	e	0.65BSC			0.026BSC		
D	3.15	3.35	3.55	0.124	0.132	0.140	H	0.30	0.40	0.50	0.012	0.016	0.020
D1	3.00	3.10	3.20	0.118	0.122	0.126	L	0.30	0.40	0.50	0.012	0.016	0.020
D2	1.53	1.73	1.93	0.060	0.068	0.076	L1	*	0.13	*	*	0.005	*
D3	*	0.13	*	*	0.005	*	θ	*	10°	12°	*	10°	12°
E	3.10	3.30	3.50	0.122	0.130	0.138	M	*	*	0.15	*	*	0.006

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

Kwansemi Semiconductor Co.,Ltd

Email:Sales@kwansemi.com

Web:www.kwansemi.com

DISCLAIMER:

Kwansemi reserves the right to change the specifications and circuitry without notice at any time. The Products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any Product can reasonably be expected to result in a personal injury. Seller's customers using or selling Seller's products for use in such applications do so at their own risk and agree to fully defend and indemnify Seller.