

### Features

- 60V/200A,  
 $R_{DS(ON)} = 3.2m\Omega(Typ.)@V_{GS}=10V$
- Low  $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged
- 100% Avalanche Tested

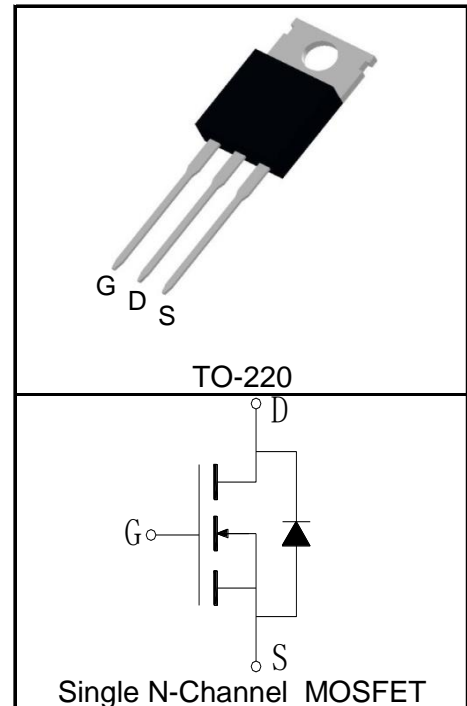
### Applications

- High efficiency DC/DC Converters
- UPS Inverter
- Synchronous Rectification



Halogen-Free

### Pin Description



### Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
<b>Common Ratings</b> ( $T_C=25^\circ\text{C}$ Unless Otherwise Noted)			
$V_{DSS}$	Drain-Source Voltage	60	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	
$T_J$	Maximum Junction Temperature	175	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
$I_S$	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 200	A
<b>Mounted on Large Heat Sink</b>			
$I_{DP}^{①}$	300 $\mu\text{s}$ Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 800	A
$I_D^{②}$	Continuous Drain Current( $V_{GS}=10V$ )	$T_C=25^\circ\text{C}$ 200	A
		$T_C=100^\circ\text{C}$ 141	
$P_D$	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 258	W
		$T_C=100^\circ\text{C}$ 129	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.58	$^\circ\text{C/W}$
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	62.5	$^\circ\text{C/W}$
<b>Drain-Source Avalanche Ratings</b>			
$E_{AS}^{④}$	Avalanche Energy, Single Pulsed	729	mJ

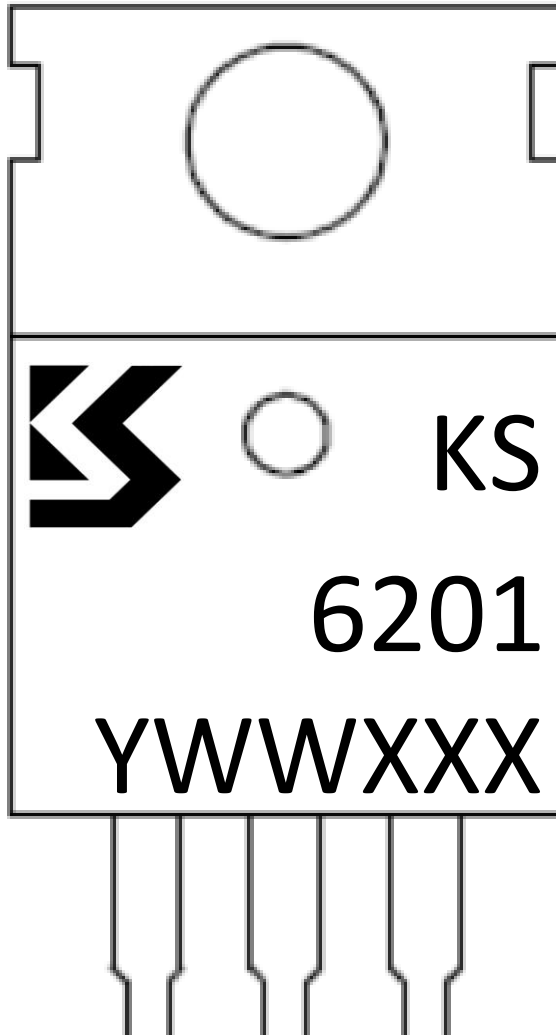
**Electrical Characteristics** ( $T_C=25^\circ\text{C}$  Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KS6201CB			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	60	72		V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
		$T_J=125^\circ C$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2	3	4	V
$I_{GSS}$	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
$R_{DS(ON)}^{(5)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=40A$		3.2	4	m $\Omega$
<b>Diode Characteristics</b>						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=40A, V_{GS}=0V$		0.83	1.2	V
$t_{rr}$	Reverse Recovery Time	$I_{SD}=40A, dI_{SD}/dt=100A/\mu s$		66		ns
$Q_{rr}$	Reverse Recovery Charge			153		nC
<b>Dynamic Characteristics<sup>(6)</sup></b>						
$R_G$	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$		2.6		$\Omega$
$C_{iss}$	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=30V,$ Frequency=1.0MHz		7150		pF
$C_{oss}$	Output Capacitance			935		
$C_{riss}$	Reverse Transfer Capacitance			280		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=30V, I_{DS}=40A,$ $V_{GEN}=10V, R_G=3\Omega$		24		ns
$t_r$	Turn-on Rise Time			18		
$t_{d(OFF)}$	Turn-off Delay Time			63		
$t_f$	Turn-off Fall Time			21		
<b>Gate Charge Characteristics<sup>(6)</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS}=30V, V_{GS}=10V,$ $I_{DS}=40A$		125		nC
$Q_{gs}$	Gate-Source Charge			38		
$Q_{gd}$	Gate-Drain Charge			35		

- Notes:
- ① Pulse width limited by safe operating area.
  - ② Calculated continuous current based on maximum allowable junction temperature. The package limitation current is 75A.
  - ③ When mounted on 1 inch square copper board,  $t \leq 10\text{sec}$ . The value in any given application depends on the user's specific board design.
  - ④ Limited by  $T_{Jmax}, I_{AS} = 54A, L=0.5\text{mH}, V_{DD} = 30V, R_G = 25\Omega$ , Starting  $T_J = 25^\circ\text{C}$ .
  - ⑤ Pulse test; Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
  - ⑥ Guaranteed by design, not subject to production testing.

## Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KS6201CB	TO-220	Tube	50	-	-

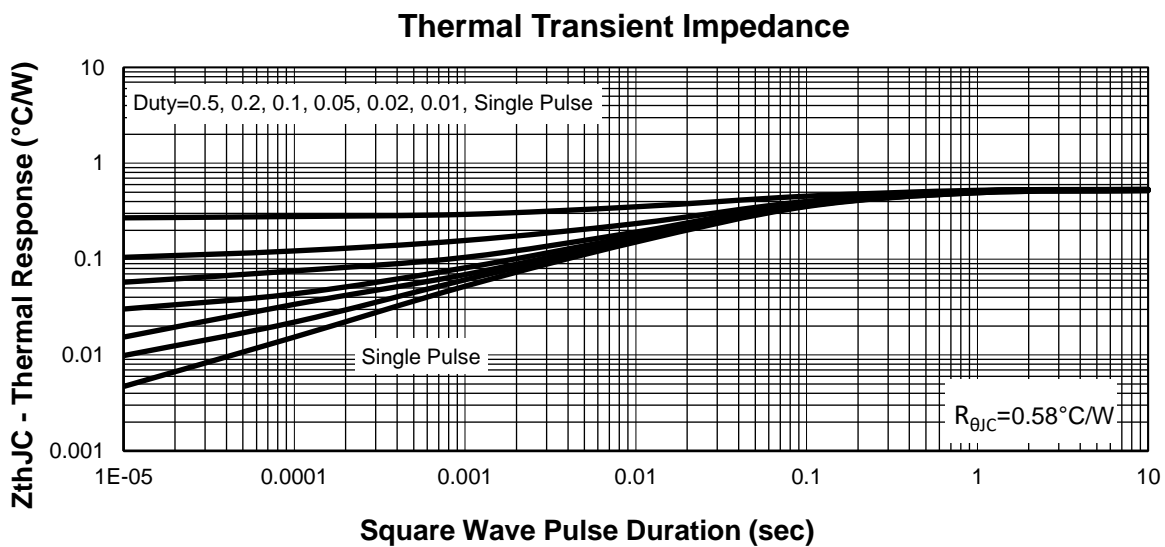
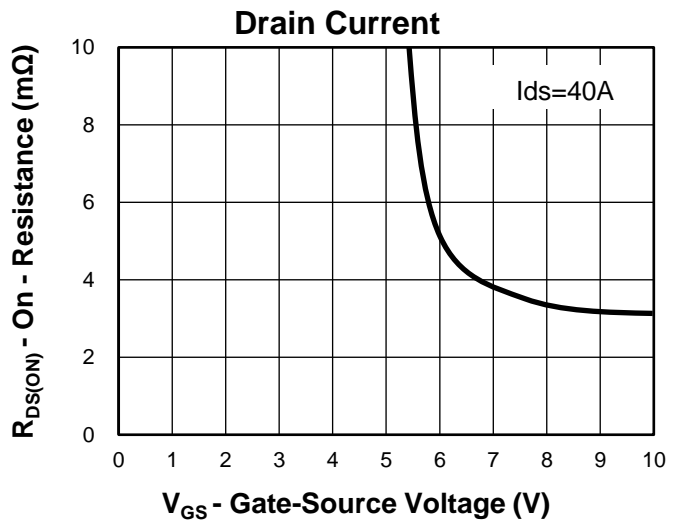
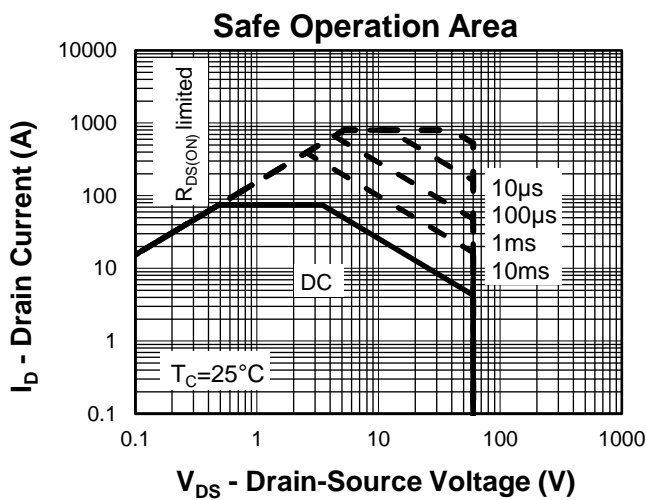
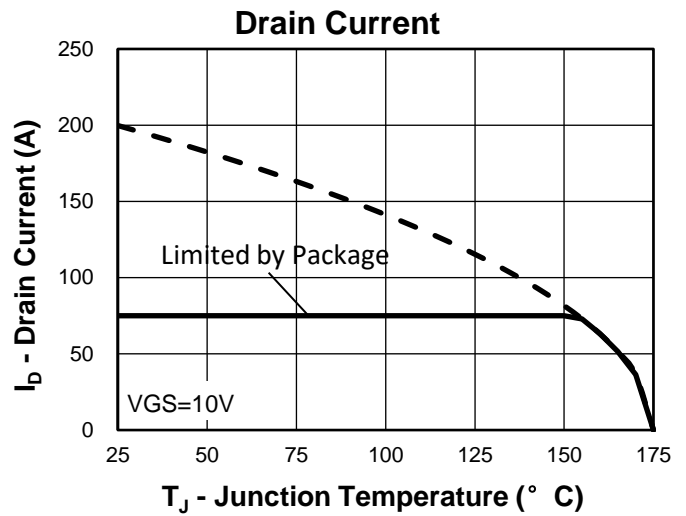
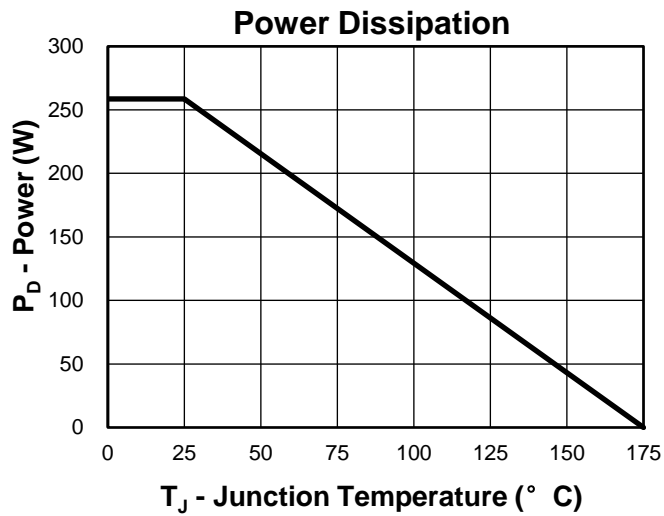


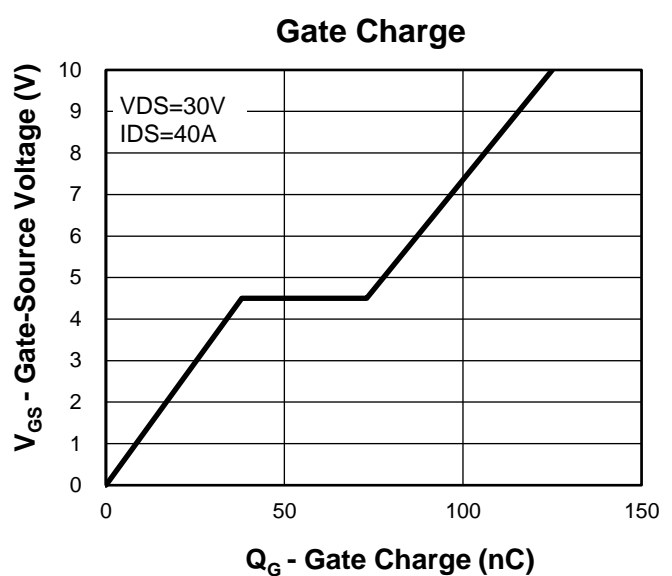
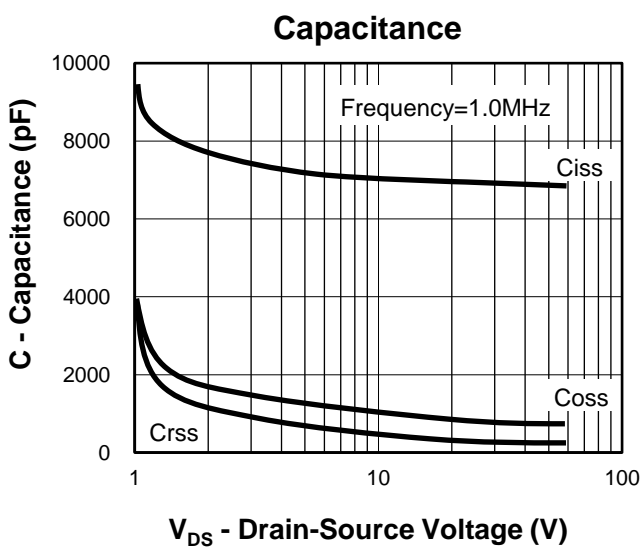
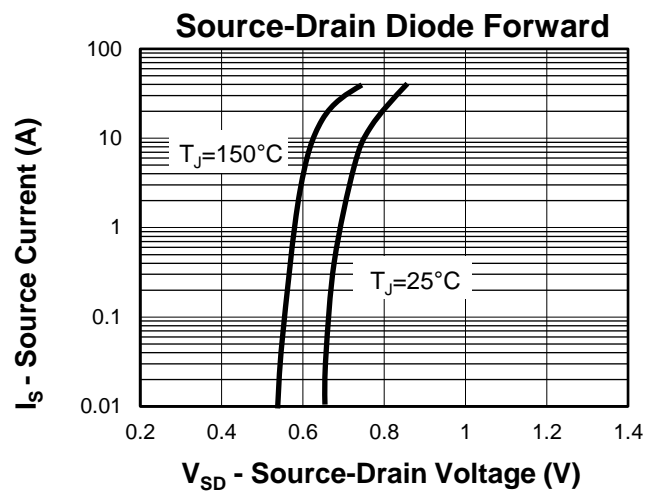
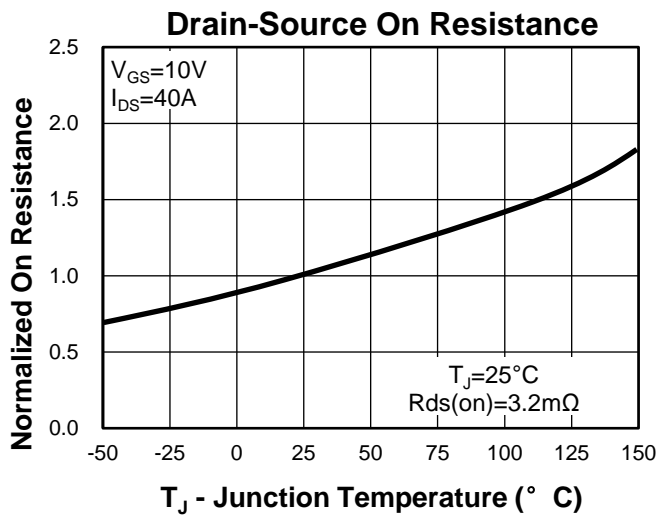
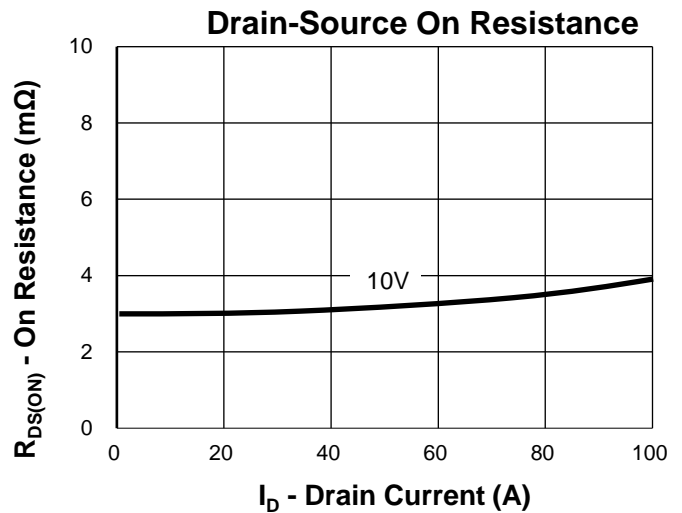
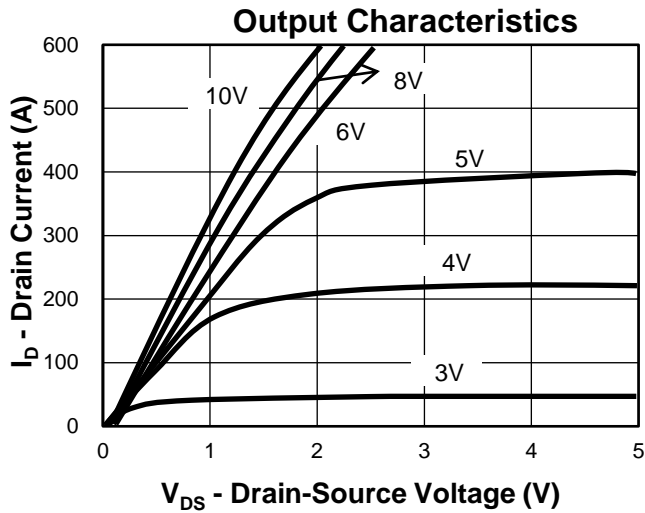
Y =Year,2017-A,2018-B,etc.

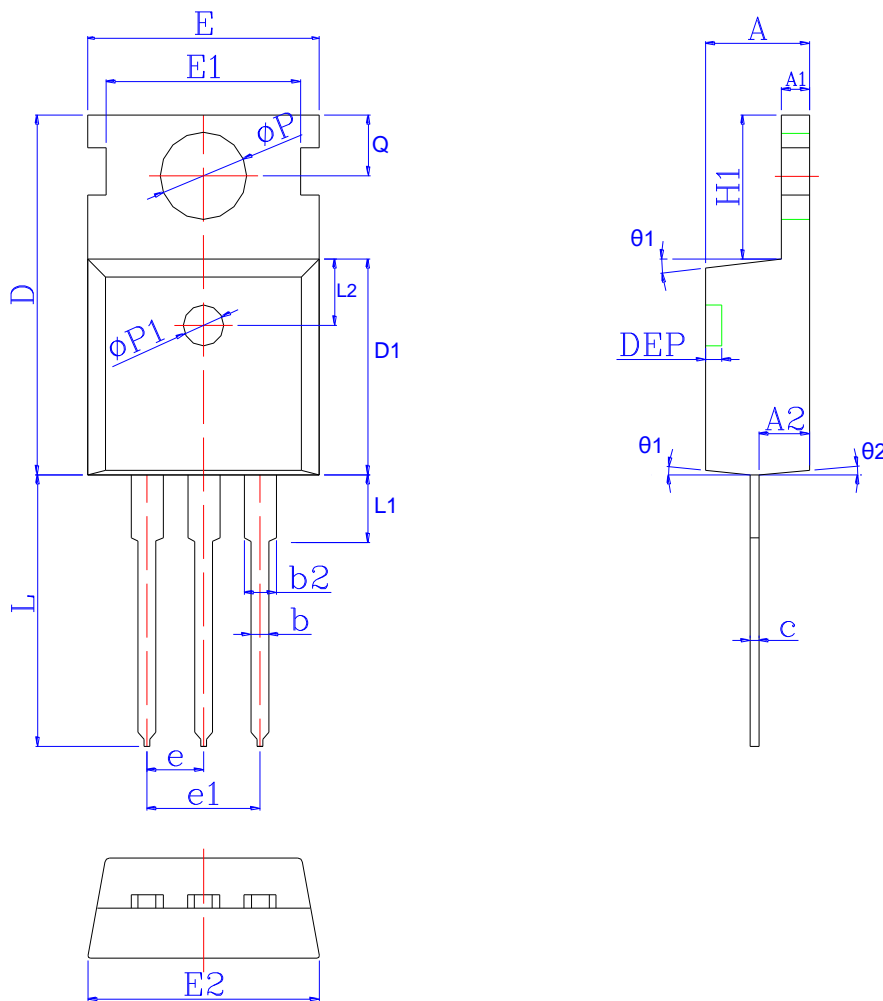
WW =Week.

XXX =Lot number.

### Typical Characteristics



**Typical Characteristics**


**Package Information**
**TO-220**


SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	4.30	4.54	4.77	0.169	0.179	0.188	$\Phi p1$	1.40	1.50	1.60	0.055	0.059	0.063
A1	1.15	1.30	1.40	0.045	0.051	0.055	e	2.54 BSC			0.10 BSC		
A2	1.90	2.25	2.60	0.075	0.089	0.102	e1	5.08 BSC			0.20 BSC		
b	0.60	0.80	1.00	0.024	0.031	0.039	H1	6.30	6.50	6.80	0.248	0.256	0.268
b2	1.17	1.28	1.72	0.046	0.050	0.068	L	12.70	13.18	13.65	0.500	0.519	0.537
c	0.40	0.50	0.60	0.016	0.020	0.024	L1	*	*	3.95	*	*	0.156
D	15.40	15.70	16.00	0.606	0.618	0.630	L2	2.50 REF			0.098 REF		
D1	8.96	9.21	9.46	0.353	0.363	0.372	$\Phi p$	3.50	3.60	3.75	0.138	0.142	0.148
DEP	*	*	0.30	*	*	0.012	Q	2.70	2.80	3.20	0.106	0.110	0.126
E	9.66	9.97	10.28	0.380	0.393	0.405	$\theta 1$	5°	7°	9°	5°	7°	9°
E1	*	8.70	*	*	0.343	*	$\theta 2$	1°	3°	5°	1°	3°	5°
E2	9.80	10.00	10.20	0.386	0.394	0.402							

### 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.