

## Features

- 200V/80A,  
 $R_{DS(ON)} = 22m\Omega(Typ.)@V_{GS}=10V$
- Low  $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged
- 100% Avalanche Tested

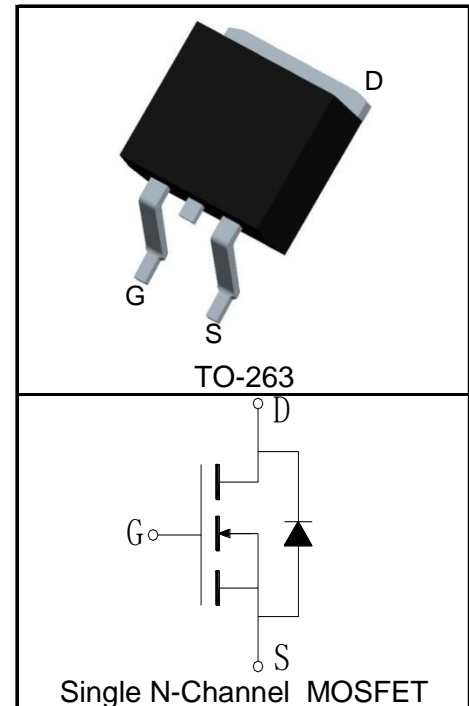
## Applications

- DC-DC Converters and Off-line UPS
- Power Management in Inverter System



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	200	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	
$T_J$	Maximum Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$I_S$	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 80	A
<b>Mounted on Large Heat Sink</b>			
$I_{DP}^{①}$	300 $\mu\text{s}$ Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 320	A
$I_D^{②}$	Continuous Drain Current( $V_{GS}=10V$ )	$T_C=25^\circ\text{C}$ 80	A
		$T_C=100^\circ\text{C}$ 51	
$P_D$	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 312	W
		$T_C=100^\circ\text{C}$ 125	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.4	$^\circ\text{C}/\text{W}$
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	62.5	$^\circ\text{C}/\text{W}$
<b>Drain-Source Avalanche Ratings</b>			
$E_{AS}^{④}$	Avalanche Energy, Single Pulsed	625	mJ

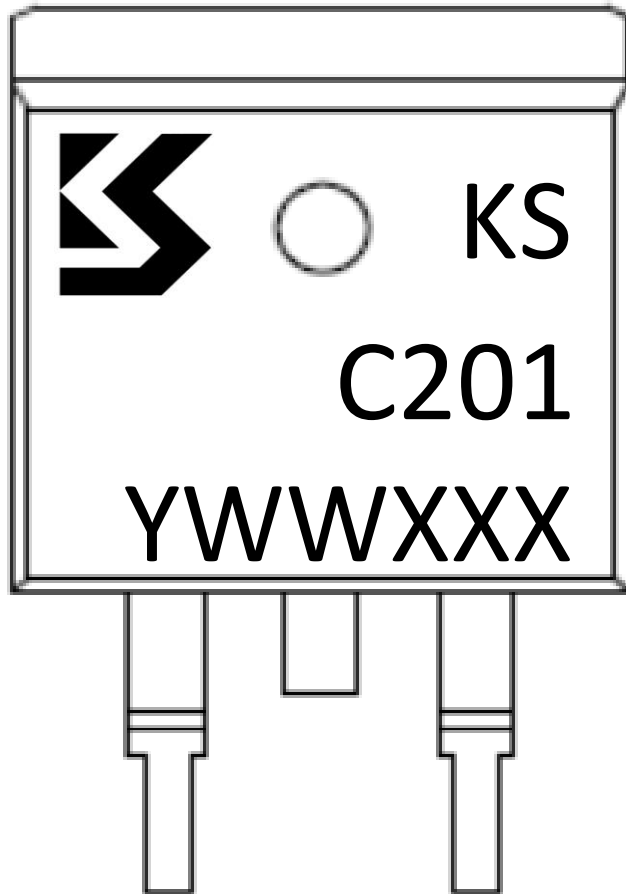
**Electrical Characteristics** ( $T_C=25^\circ\text{C}$  Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KSC201GA			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	200			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=200V, V_{GS}=0V$			1	$\mu A$
		$T_J=125^\circ\text{C}$			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	$V_{GS}=10V, I_{DS}=40A$		22	28	m $\Omega$
<b>Diode Characteristics</b>						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=40A, V_{GS}=0V$		0.84	1.2	V
$t_{rr}$	Reverse Recovery Time	$I_{SD}=40A, dI_{SD}/dt=100A/\mu s$		49		ns
$Q_{rr}$	Reverse Recovery Charge			81		nC
<b>Dynamic Characteristics<sup>(6)</sup></b>						
$R_G$	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		1.6		$\Omega$
$C_{iss}$	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=100V,$ Frequency=1.0MHz		6255		pF
$C_{oss}$	Output Capacitance			450		
$C_{riss}$	Reverse Transfer Capacitance			115		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=100V, I_{DS}=40A,$ $V_{GEN}=10V, R_G=6\Omega$		26		ns
$t_r$	Turn-on Rise Time			33		
$t_{d(OFF)}$	Turn-off Delay Time			75		
$t_f$	Turn-off Fall Time			21		
<b>Gate Charge Characteristics<sup>(6)</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS}=100V, V_{GS}=10V,$ $I_{DS}=40A$		141		nC
$Q_{gs}$	Gate-Source Charge			29		
$Q_{gd}$	Gate-Drain Charge			56		

- 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  $T_{Jmax}, I_{AS}=50A, L=0.5\text{mH}, V_{DD}=48V, R_G=25\Omega$ , Starting  $T_J=25^\circ\text{C}$ , 100% tested and guaranteed.
  - 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
KSC201GA	TO-263	Tape&Reel	800	13"	24mm

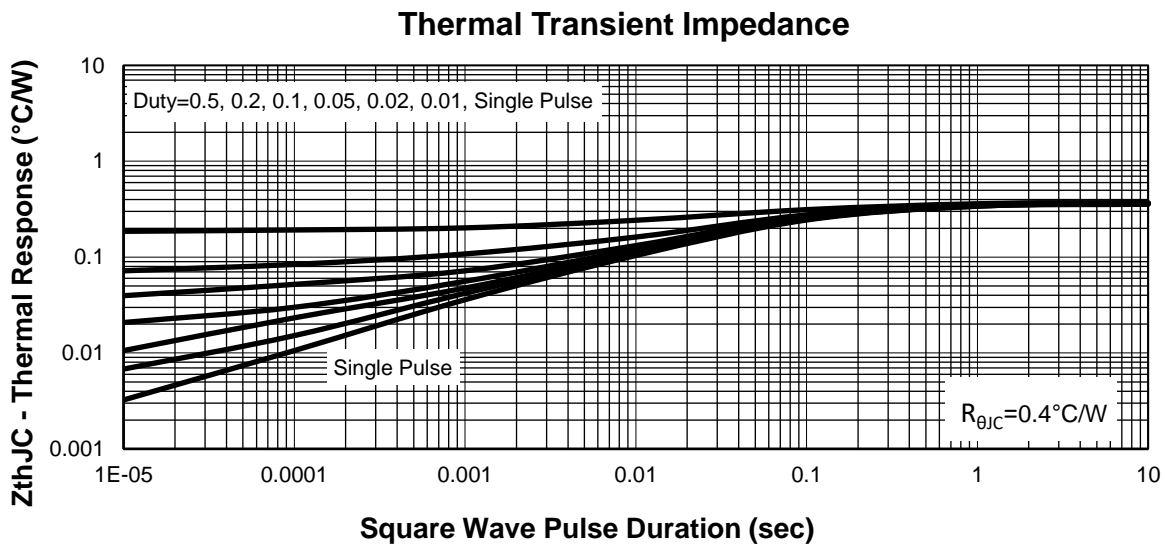
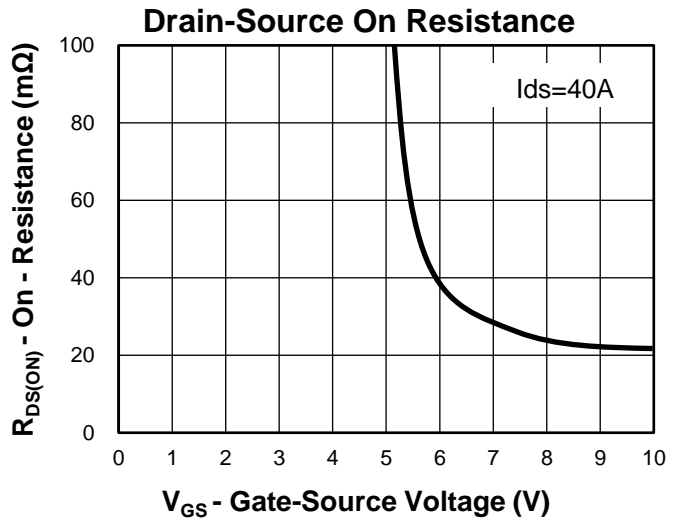
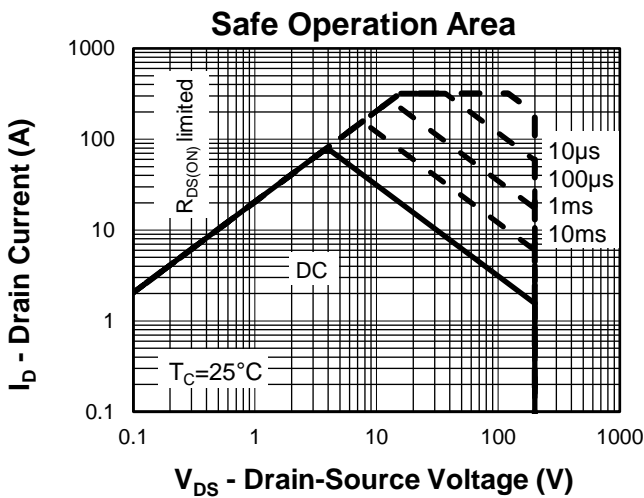
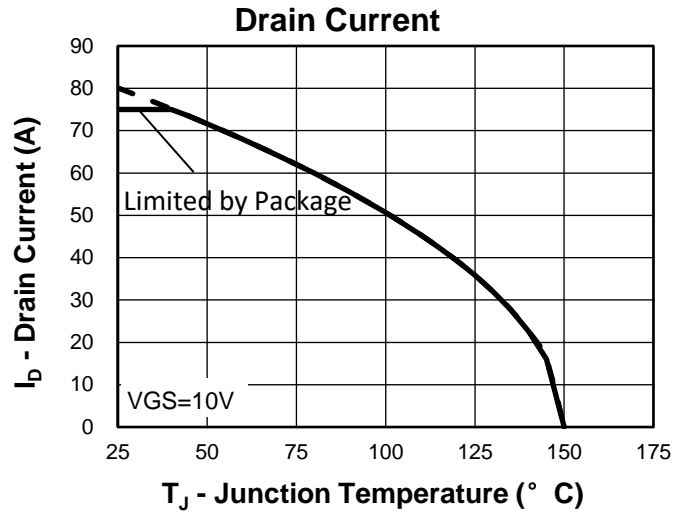
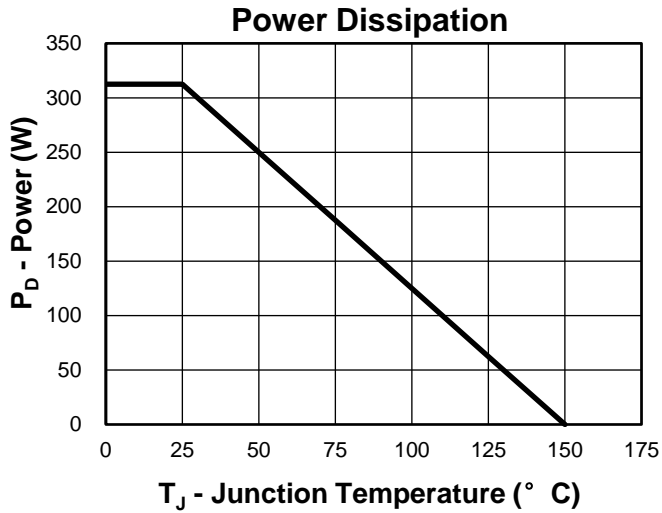


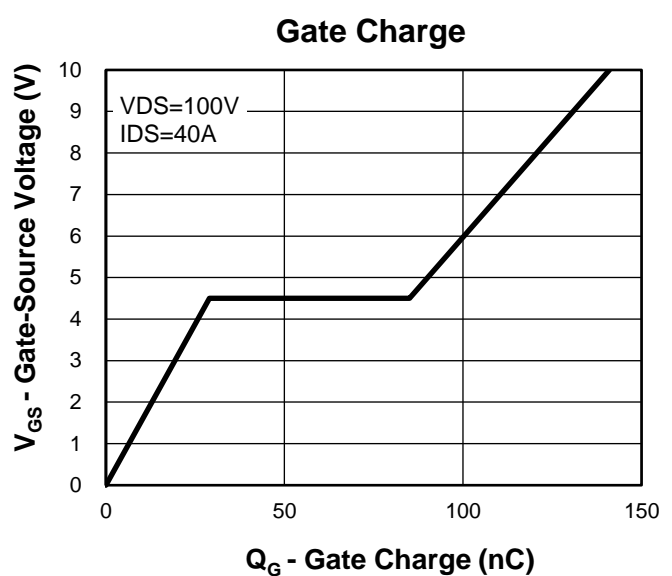
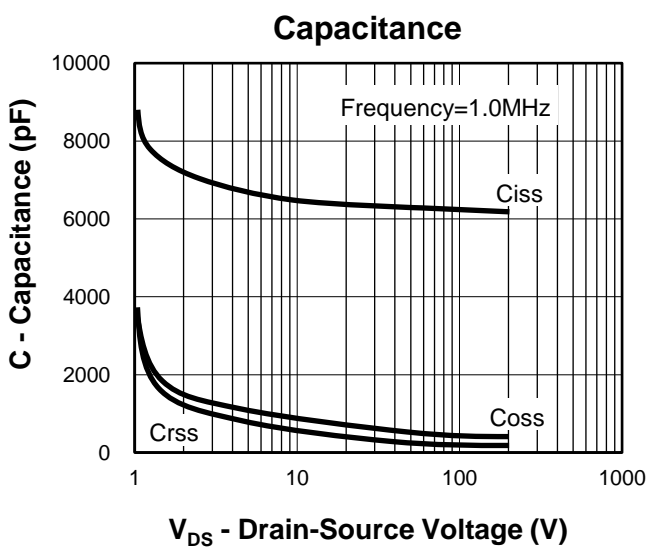
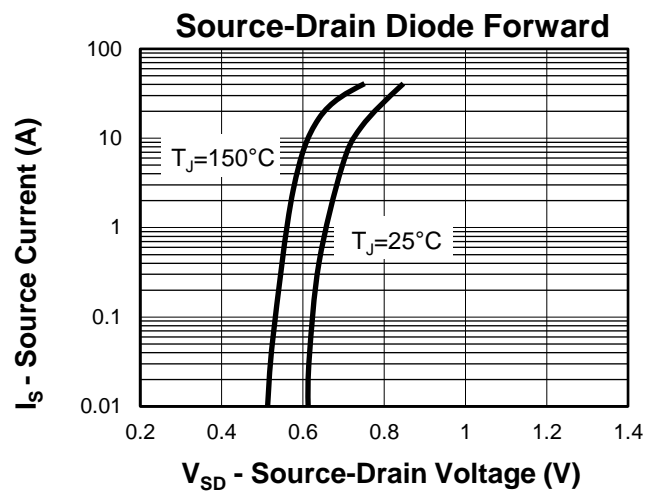
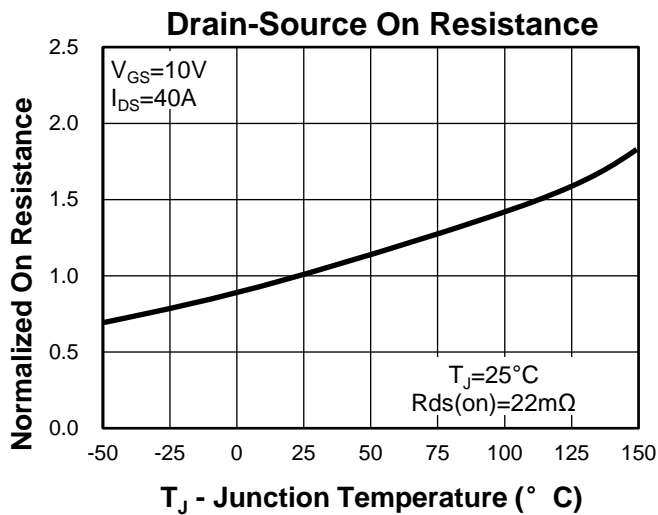
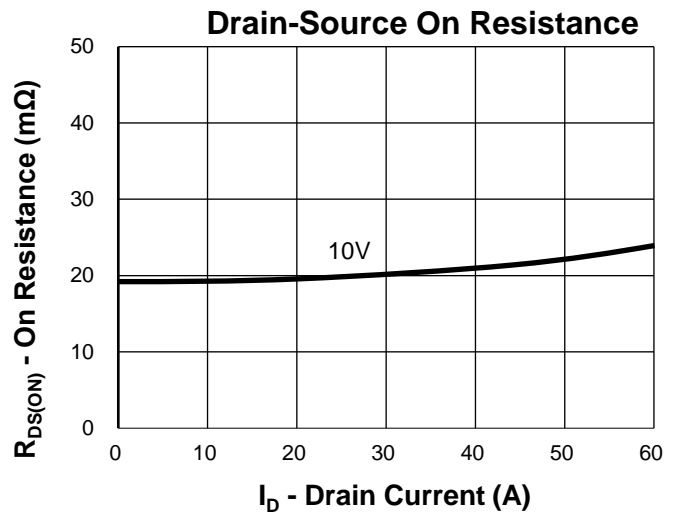
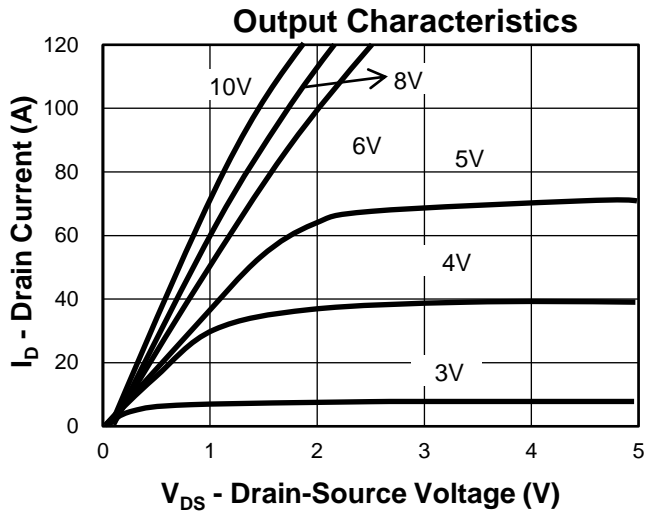
1st Line: Kwansemi LOGO, Kwansemi Code(KS)

2nd Line: Part Number(C201)

3rd Line: Lot Number(YWWXXX)

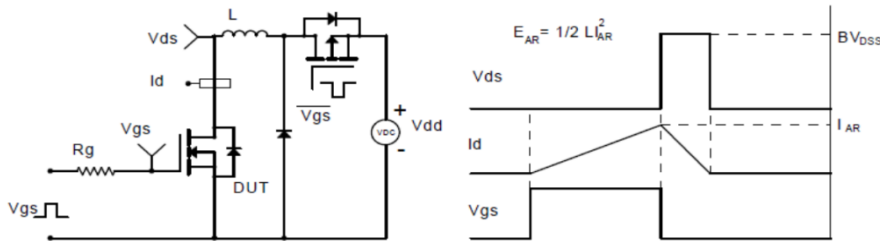
### Typical Characteristics



**Typical Characteristics**




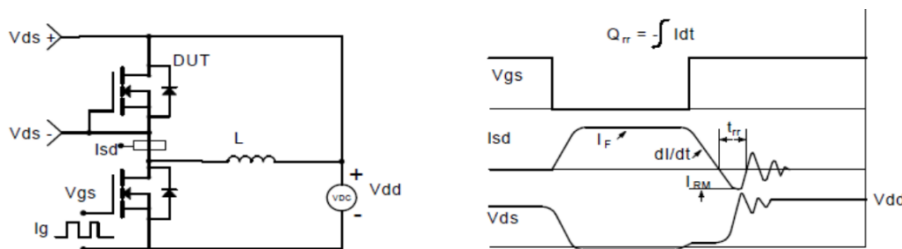
### Avalanche Test Circuit and Waveforms



### 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.