

### Features

- 100V/360A,  
 $R_{DS(ON)} = 1.3m\Omega(Typ.)@V_{GS}=10V$
- Excellent  $Q_G \times R_{DS(on)}$  product(FOM)
- SGT Technology
- 100% Avalanche Tested
- Good Thermal Performance

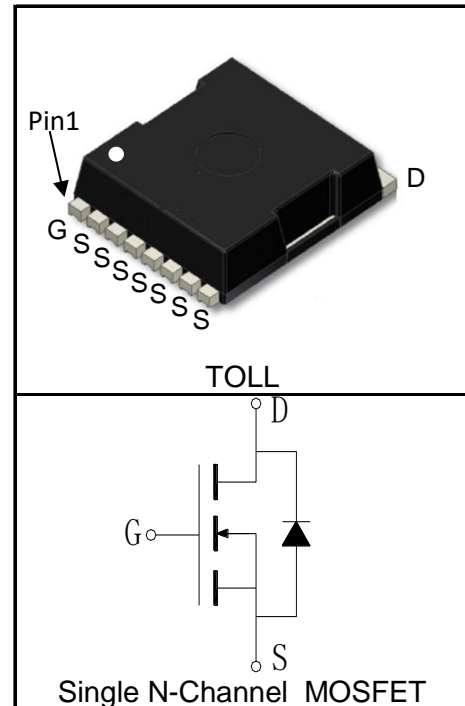
### Applications

- Motor Control
- Battery Power Management



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                         | 100                            | 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             | $T_C=25^\circ\text{C}$<br>360  | A                         |
| <b>Mounted on Large Heat Sink</b>                                      |  |                                |                           |
| $I_{DP}^{①}$   | 300 $\mu\text{s}$ Pulse Drain Current Tested | $T_C=25^\circ\text{C}$<br>1440 | A                         |
| $I_D^{②}$  | Continuous Drain Current( $V_{GS}=10V$ )     | $T_C=25^\circ\text{C}$<br>360  | A                         |
|  |  | $T_C=100^\circ\text{C}$<br>254 |                           |
| $P_D$  | Maximum Power Dissipation                    | $T_C=25^\circ\text{C}$<br>468  | W                         |
|  |  | $T_C=100^\circ\text{C}$<br>234 |                           |
| $R_{\theta JC}$  | Thermal Resistance-Junction to Case          | 0.32                           | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JA}^{③}$  | Thermal Resistance-Junction to Ambient       | 40                             | $^\circ\text{C}/\text{W}$ |
| <b>Drain-Source Avalanche Ratings</b>                                  |  |                                |                           |
| $E_{AS}^{④}$   | Avalanche Energy, Single Pulsed              | 992                            | mJ                        |

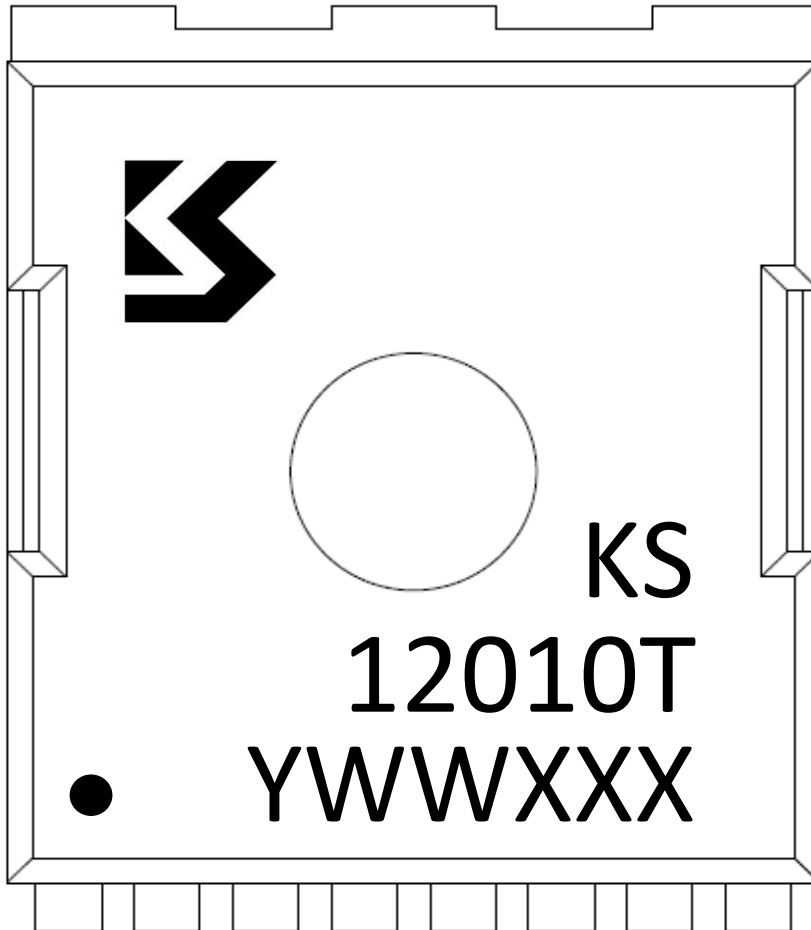
**Electrical Characteristics** ( $T_C=25^\circ\text{C}$  Unless Otherwise Noted)

| Symbol   | Parameter                        | Test Condition  | KS12010LAT |       |           | Unit       |
|--|----------------------------------|---|------------|-------|-----------|------------|
|  |                                  |   | Min.       | Typ.  | Max.      |            |
| <b>Static Characteristics</b>                    |                                  |   |            |       |           |            |
| $BV_{DSS}$                                       | Drain-Source Breakdown Voltage   | $V_{GS}=0V, I_{DS}=250\mu A$                            | 100        |       |           | V          |
| $I_{DSS}$  | Zero Gate Voltage Drain Current  | $V_{DS}=100V, V_{GS}=0V$                                |            |       | 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 | $V_{GS}=10V, I_{DS}=40A$                                |            | 1.3   | 2         | m $\Omega$ |
| <b>Diode Characteristics</b>                     |                                  |   |            |       |           |            |
| $V_{SD}^{(5)}$                                   | Diode Forward Voltage            | $I_{SD}=40A, V_{GS}=0V$                                 |            | 0.79  | 1.2       | V          |
| $t_{rr}$   | Reverse Recovery Time            | $I_{SD}=40A, dI_{SD}/dt=100A/\mu s$                     |            | 97    |           | ns         |
| $Q_{rr}$   | Reverse Recovery Charge          |   |            | 210   |           | nC         |
| <b>Dynamic Characteristics<sup>(6)</sup></b>     |                                  |   |            |       |           |            |
| $R_G$  | Gate Resistance                  | $V_{GS}=0V, V_{DS}=0V, F=1MHz$                          |            | 2     |           | $\Omega$   |
| $C_{iss}$  | Input Capacitance                | $V_{GS}=0V,$<br>$V_{DS}=50V,$<br>Frequency=1.0MHz       |            | 11105 |           | pF         |
| $C_{oss}$  | Output Capacitance               |   |            | 1910  |           |            |
| $C_{riss}$                                       | Reverse Transfer Capacitance     |   |            | 120   |           |            |
| $t_{d(ON)}$                                      | Turn-on Delay Time               | $V_{DD}=50V, I_{DS}=40A,$<br>$V_{GEN}=10V, R_G=3\Omega$ |            | 37    |           | ns         |
| $t_r$  | Turn-on Rise Time                |   |            | 29    |           |            |
| $t_{d(OFF)}$                                     | Turn-off Delay Time              |   |            | 105   |           |            |
| $t_f$  | Turn-off Fall Time               |   |            | 61    |           |            |
| <b>Gate Charge Characteristics<sup>(6)</sup></b> |                                  |   |            |       |           |            |
| $Q_g$  | Total Gate Charge                | $V_{DS}=50V, V_{GS}=10V,$<br>$I_{DS}=40A$               |            | 165   |           | nC         |
| $Q_{gs}$   | Gate-Source Charge               |   |            | 46    |           |            |
| $Q_{gd}$   | Gate-Drain Charge                |   |            | 38    |           |            |

- Notes:
- ① Pulse width limited by safe operating area.
  - ② Calculated continuous current based on maximum allowable junction temperature.
  - 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  $T_{Jmax}, I_{AS} = 63A, L = 0.5\text{mH}, V_{DD} = 48V, R_G = 25\Omega$ , 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.

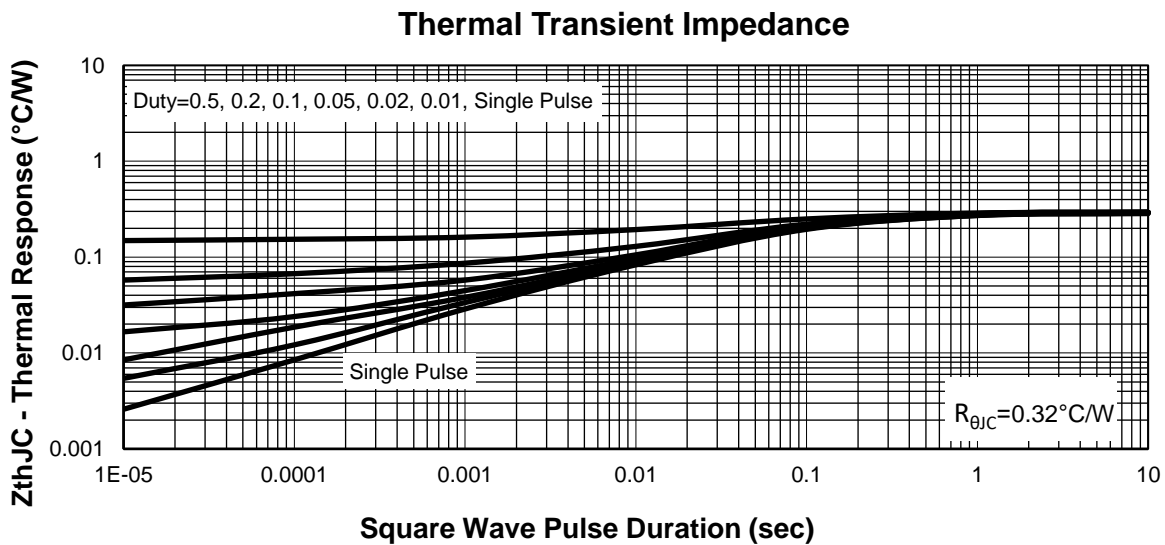
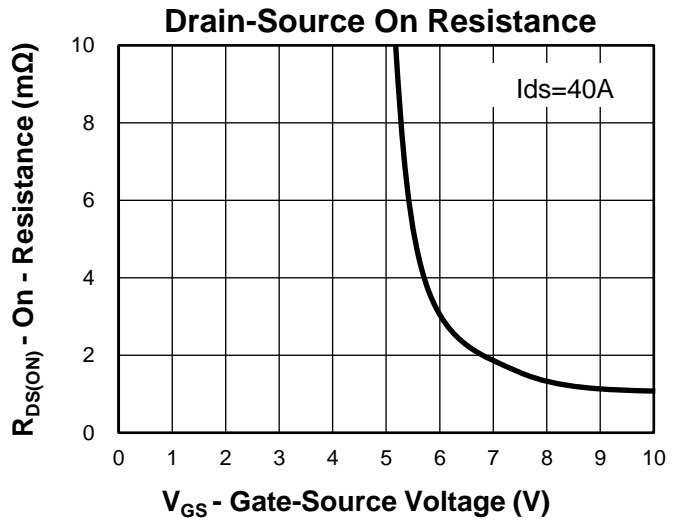
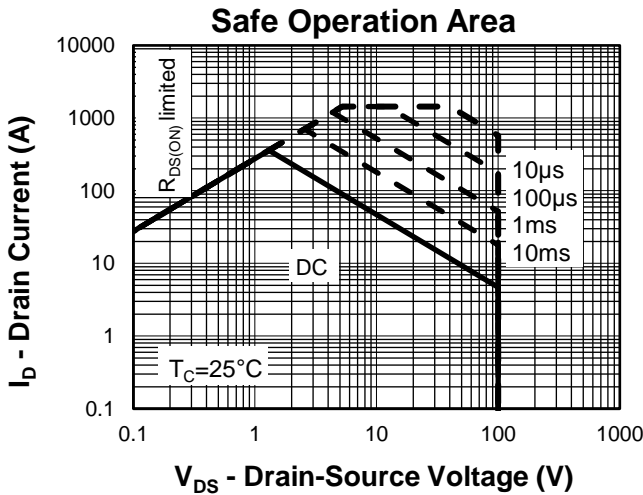
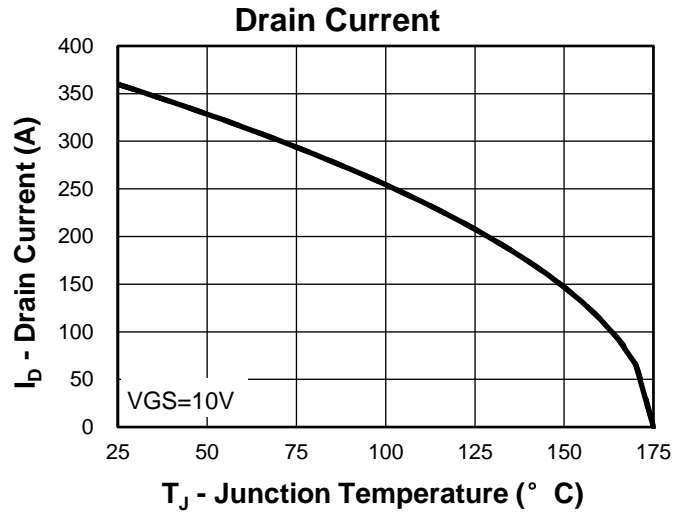
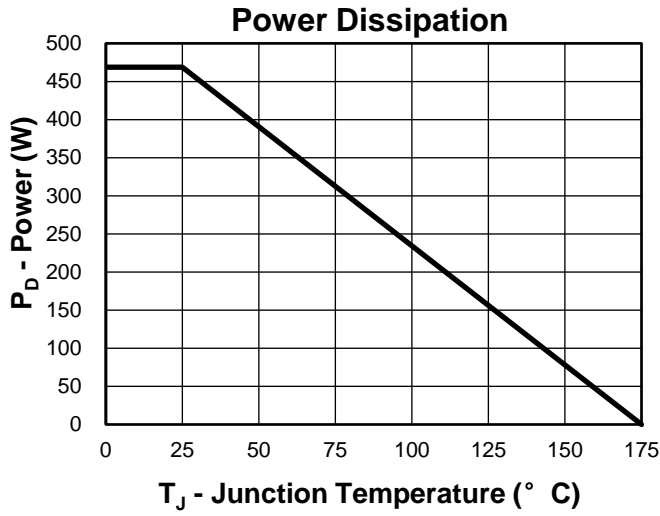
**Ordering and Marking Information**

| Device     | Package | Packaging | Quantity | Reel Size | Tape width |
|------------|---------|-----------|----------|-----------|------------|
| KS12010LAT | TOLL    | Tape&Reel | 2000     | 13"       | 24mm       |

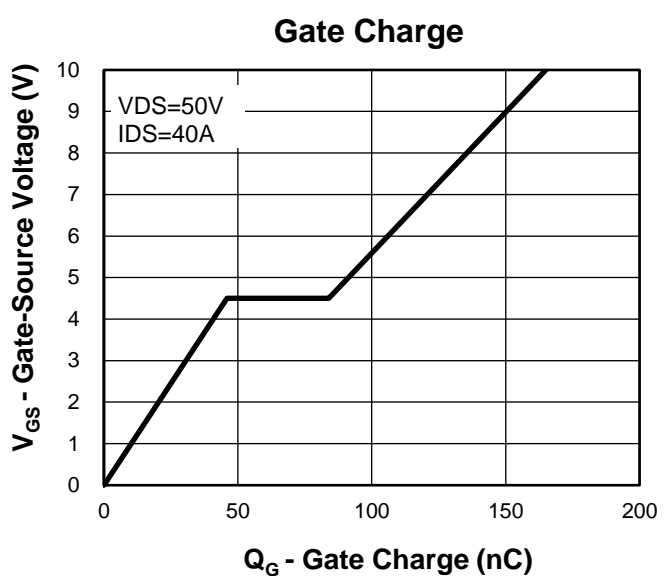
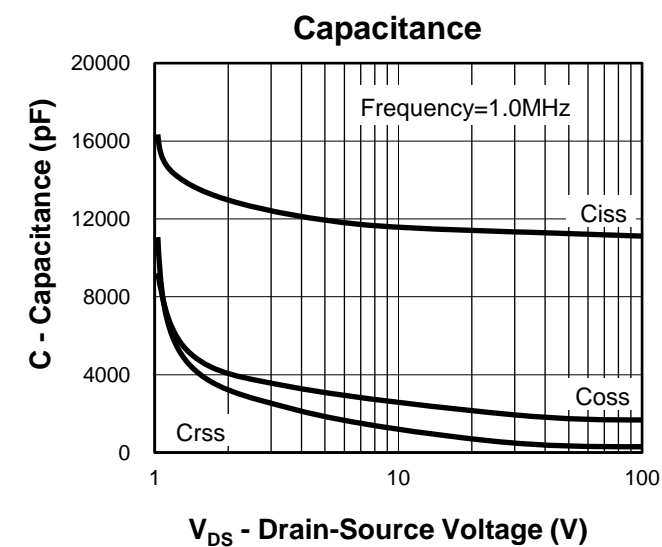
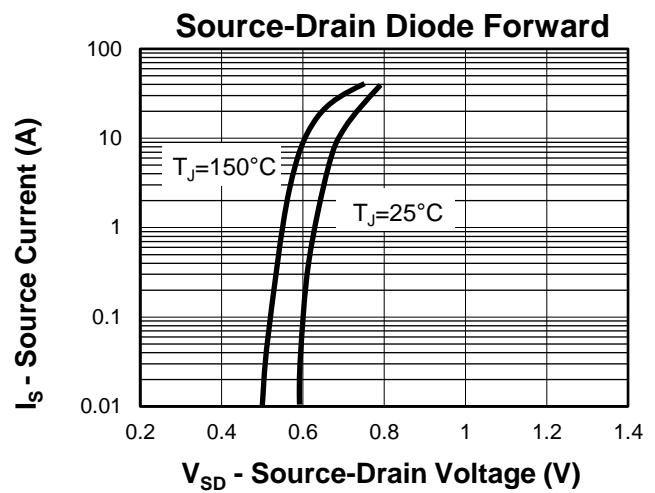
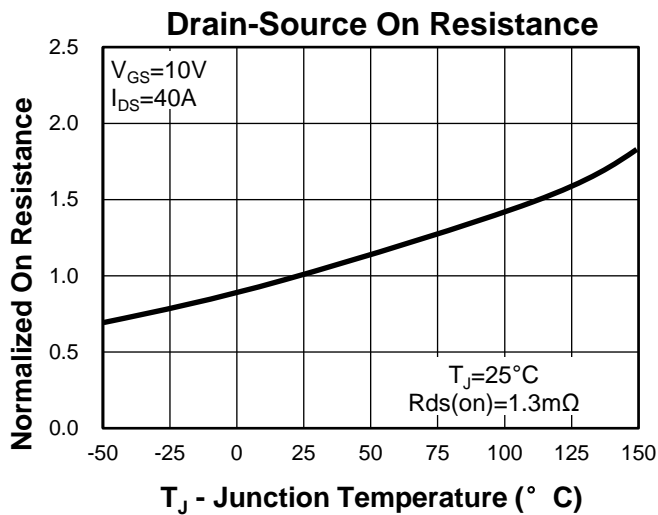
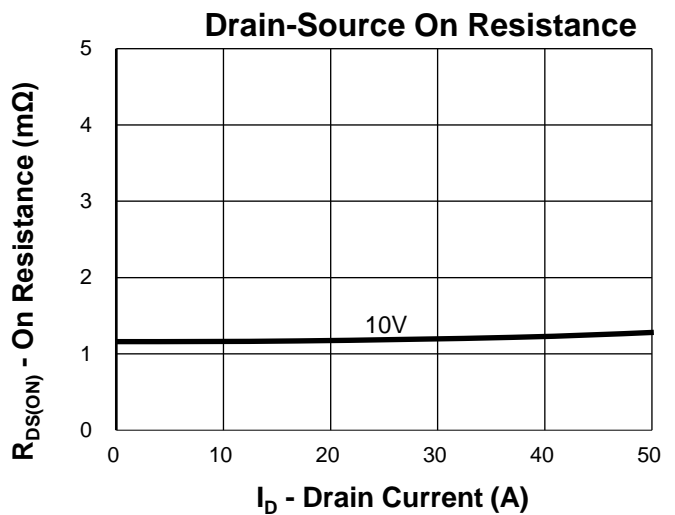
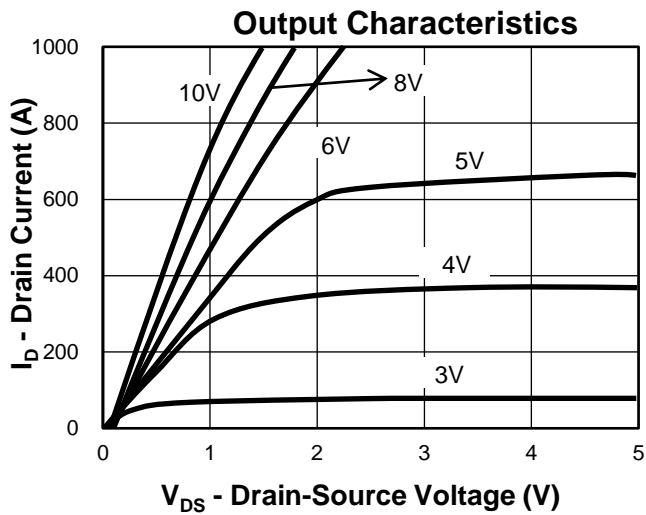


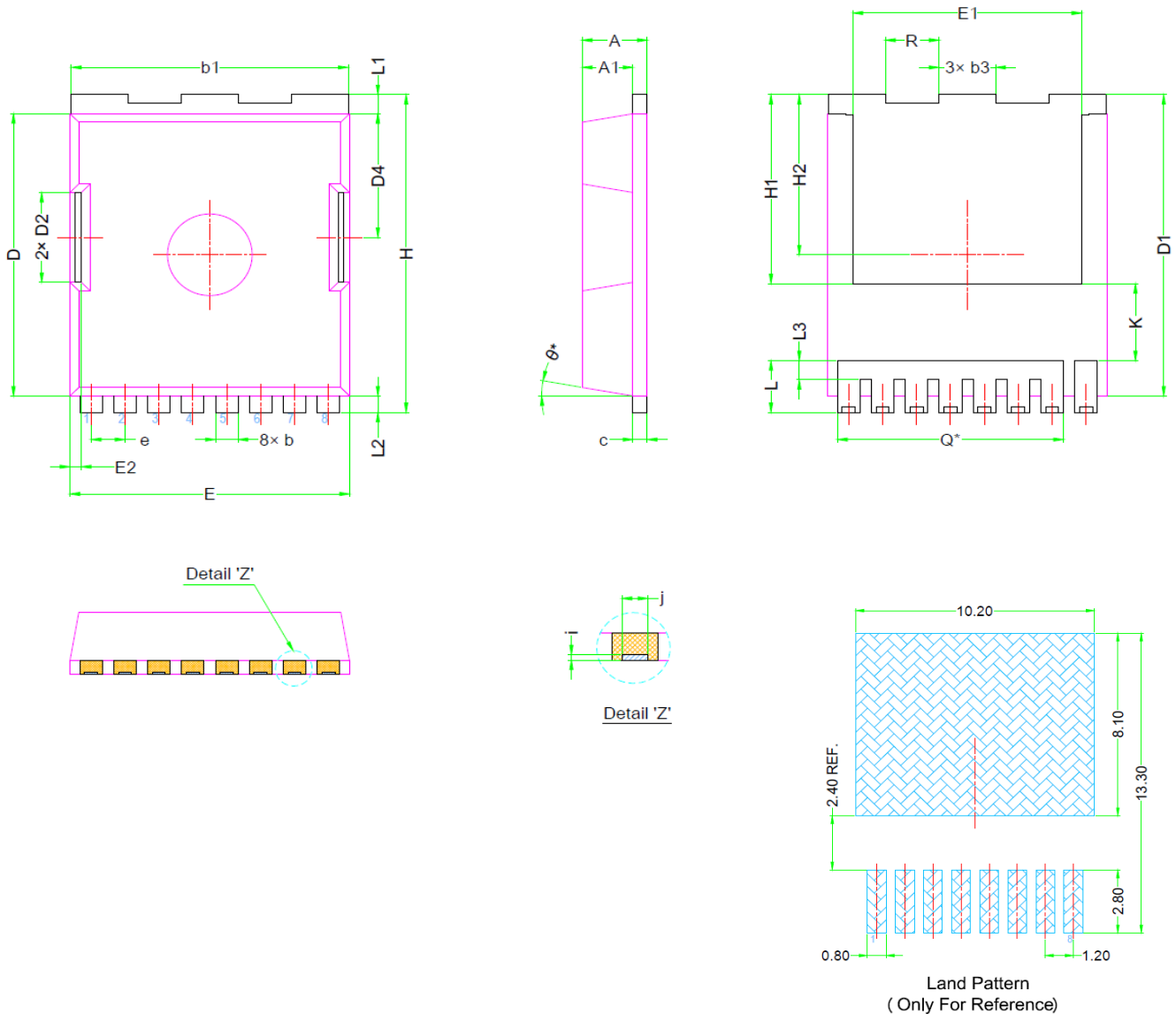
- 1st Line: Kwansemi LOGO
- 2nd Line: Kwansemi Code(KS)
- 3rd Line: Part Number(12010T)
- 4th Line: Lot Number(YWWXXX)

Typical Characteristics



### Typical Characteristics



**Package Information**
**TOLL**


| SYMBOL | MM      |       |       | INCH     |       |       | SYMBOL   | MM      |       |       | INCH     |       |       |
|--------|---------|-------|-------|----------|-------|-------|----------|---------|-------|-------|----------|-------|-------|
|        | MIN     | NOM   | MAX   | MIN      | NOM   | MAX   |          | MIN     | NOM   | MAX   | MIN      | NOM   | MAX   |
| A      | 2.20    | 2.30  | 2.40  | 0.087    | 0.091 | 0.094 | H        | 11.58   | 11.68 | 11.78 | 0.456    | 0.460 | 0.464 |
| A1     | 1.70    | 1.80  | 1.90  | 0.067    | 0.071 | 0.075 | H1       | 6.95BSC |       |       | 0.274BSC |       |       |
| b      | 0.70    | 0.80  | 0.90  | 0.028    | 0.031 | 0.035 | H2       | 5.89BSC |       |       | 0.232BSC |       |       |
| b1     | 9.70    | 9.80  | 9.90  | 0.382    | 0.386 | 0.390 | i        | 0.10REF |       |       | 0.004REF |       |       |
| b3     | 1.20REF |       |       | 0.047REF |       |       | j        | 0.46REF |       |       | 0.018REF |       |       |
| c      | 0.40    | 0.50  | 0.60  | 0.016    | 0.020 | 0.024 | K        | 3.10REF |       |       | 0.122REF |       |       |
| D      | 10.28   | 10.38 | 10.48 | 0.405    | 0.409 | 0.413 | L        | 1.60    | 1.90  | 2.10  | 0.063    | 0.075 | 0.083 |
| D1     | 10.98   | 11.08 | 11.18 | 0.432    | 0.436 | 0.440 | L1       | 0.60    | 0.70  | 0.80  | 0.024    | 0.028 | 0.031 |
| D2     | 3.20    | 3.30  | 3.40  | 0.126    | 0.130 | 0.134 | L2       | 0.50    | 0.60  | 0.70  | 0.020    | 0.024 | 0.028 |
| D4     | 4.45    | 4.55  | 4.65  | 0.175    | 0.179 | 0.183 | L3       | 0.60    | 0.70  | 0.80  | 0.024    | 0.028 | 0.031 |
| E      | 9.80    | 9.90  | 10.00 | 0.386    | 0.390 | 0.394 | Q        | 6.80REF |       |       | 0.268REF |       |       |
| E1     | 8.00    | 8.10  | 8.20  | 0.315    | 0.319 | 0.323 | R        | 3.10REF |       |       | 0.122REF |       |       |
| E2     | 0.30    | 0.40  | 0.50  | 0.012    | 0.016 | 0.020 | $\theta$ | 10°REF  |       |       | 10°REF   |       |       |
| e      | 1.20BSC |       |       | 0.047BSC |       |       |          |         |       |       |          |       |       |

### 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.

深圳市泰德兰电子有限公司（简称：泰德兰），是一家专业代理国内外品牌电子元器件代理商。“泰德兰”的目标是为客户提供高性价比的产品和服务。我们一贯坚持：“品质第一、价格合理、交货快捷、服务至上、凝聚客户”的发展理念和宗旨以向采购商提供最满意的服务为己任，向采购商提供规范化、专业化、多元化、全方位的优质服务，真诚欢迎海内外直接用户前来洽谈合作，共谋发展！也希望能与电子界同行进行广泛的交流合作共同为行业的繁荣发展做出贡献！

目前，泰德兰电子主要代理：霍尼韦尔、理光、NJRC、英集芯、维安、贝岭、捷捷微、冠禹、松木、辉芒微、茂捷和元拓等。

主营产品线有 LDO、DC/DC、AC-DC、电压检测器、充电 IC、负载开关 IC、保险丝、多功能集成保护 IC、功率 TVS 管、二三极管、PMU、马达驱动、LED 驱动、功率器件、数字电源、Hall IC、磁组、传感器 IC、汽容胶传感器、压力传感器、位移传感器、惯导模块、锂电保护芯片、微动开关、PTC、ESD、EEPROM, 8bit/32bit MCU, PMIC、中低压 MOS 管、高压 COOL MOS、高压平面 MOSFET 等。

“泰德兰”代理的产品被广泛应用于液晶电视、笔记本、联网、便携式设备、机顶盒、闭路电视/安全、桌面、LED 照明、玩具、网络电视机、无人机、扫地机、无线充、蓝牙设备、汽车应用、行车记录仪、无线路由等领域。

“泰德兰”所代理的产品均通过 ISO 9001:2000 品质管理系统检验；获得原厂颁发的代理授权证书。

### 深圳公司

#### 深圳市泰德兰电子有限公司

地址：深圳市福田区彩田南路 2010 号中深花园 A 座六层

电话：0755-83322522      传真：0755-83648400

手机：131-89714166      Q Q：2853781768

### 香港公司

#### 香港富研科技有限公司

地址：香港葵涌青山公路葵涌段 313 号天际中心 15 楼 1506 室

电话：852-23113966      邮箱：[ll@icbest.com](mailto:ll@icbest.com)

### 苏州公司

#### 苏州市泰美兰电子有限公司

地址：苏州姑苏区总官堂路 555 号苏尚新地生活广场 1 幢 802 室

电话：0512-67665578      邮箱：[wg@icbest.com](mailto:wg@icbest.com)