

Features

- 85V/155A,
 $R_{DS(on)} = 3.9m\Omega(Typ.)@V_{GS}=10V$
- Excellent $Q_G \times R_{DS(on)}$ product(FOM)
- SGT Technology
- 100% Avalanche Tested

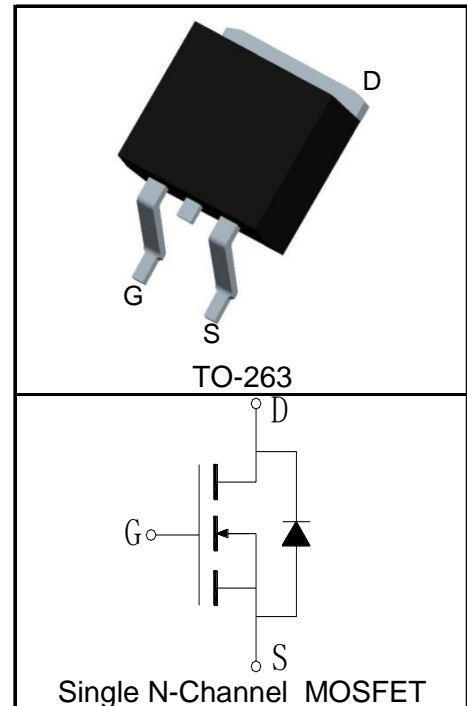
Applications

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



Halogen-Free

Pin Description



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	85	V
V_{GSS}	Gate-Source Voltage	± 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	$T_C=25^\circ\text{C}$ 155	A
Mounted on Large Heat Sink			
$I_{DP}^{(1)}$	300 μs Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 620	A
$I_D^{(2)}$	Continuous Drain Current($V_{GS}=10V$)	$T_C=25^\circ\text{C}$ 155	A
		$T_C=100^\circ\text{C}$ 110	
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 190	W
		$T_C=100^\circ\text{C}$ 95	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.79	$^\circ\text{C/W}$
$R_{\theta JA}^{(3)}$	Thermal Resistance-Junction to Ambient	62.5	$^\circ\text{C/W}$
Drain-Source Avalanche Ratings			
$E_{AS}^{(4)}$	Avalanche Energy, Single Pulsed	324	mJ

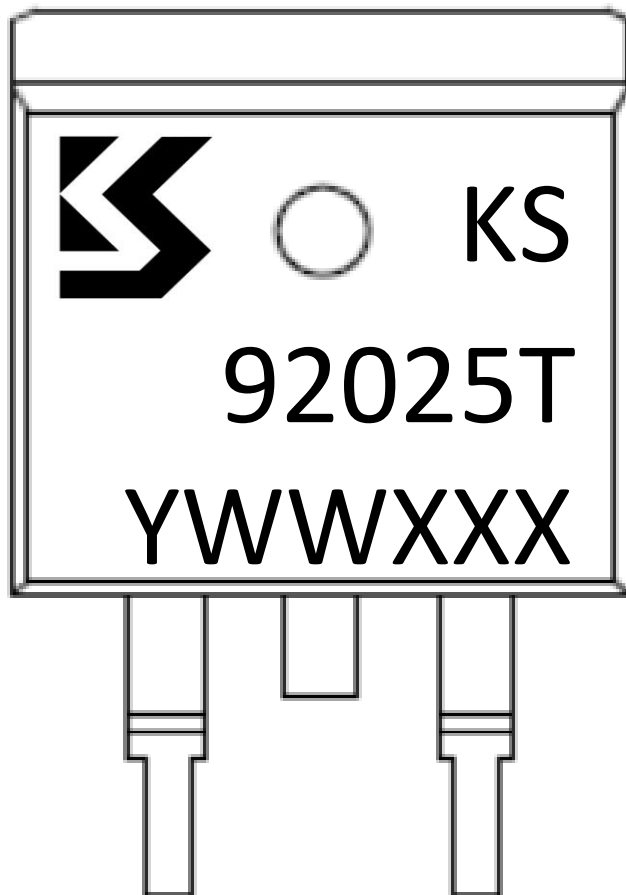
Electrical Characteristics ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KS92025GAT			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	85	92		V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V$			1	μA
		$T_J=125^\circ\text{C}$			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	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(5)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=40A$		3.9	4.9	m Ω
Diode Characteristics						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=40A, V_{GS}=0V$		0.88	1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=40A, dI_{SD}/dt=100A/\mu s$		34		ns
Q_{rr}	Reverse Recovery Charge			50		nC
Dynamic Characteristics⁽⁶⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		1.8		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=40V,$ Frequency=1.0MHz		2950		pF
C_{oss}	Output Capacitance			1100		
C_{riss}	Reverse Transfer Capacitance			55		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=40V, I_{DS}=40A,$ $V_{GEN}=10V, R_G=3\Omega$		15		ns
t_r	Turn-on Rise Time			23		
$t_{d(OFF)}$	Turn-off Delay Time			30		
t_f	Turn-off Fall Time			12		
Gate Charge Characteristics⁽⁶⁾						
Q_g	Total Gate Charge	$V_{DS}=40V, V_{GS}=10V,$ $I_{DS}=40A$		46		nC
Q_{gs}	Gate-Source Charge			11		
Q_{gd}	Gate-Drain Charge			9		

- 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 $T_{Jmax}, I_{AS}=36A, L=0.5\text{mH}, V_{DD}=48V, R_G=25\Omega$, 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
KS92025GAT	TO-263	Tape&Reel	800	13"	24mm

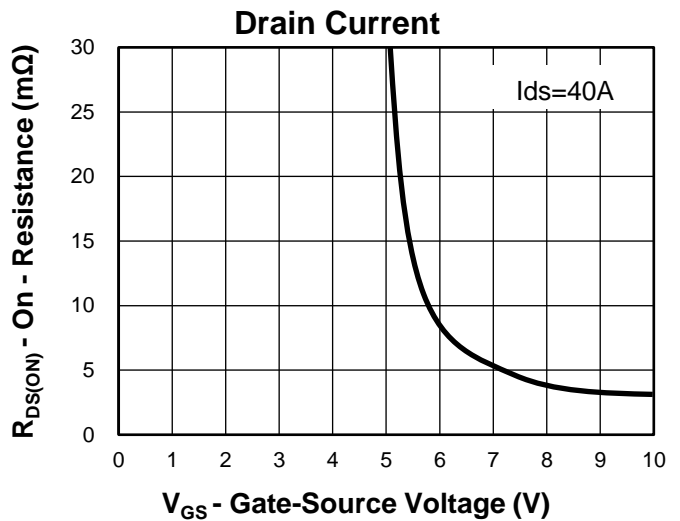
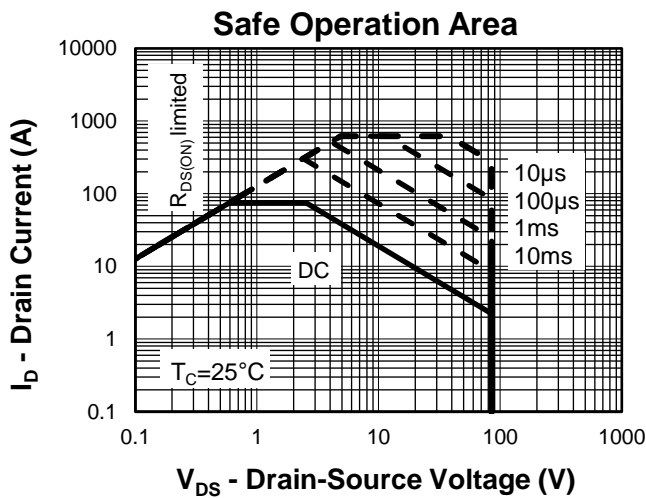
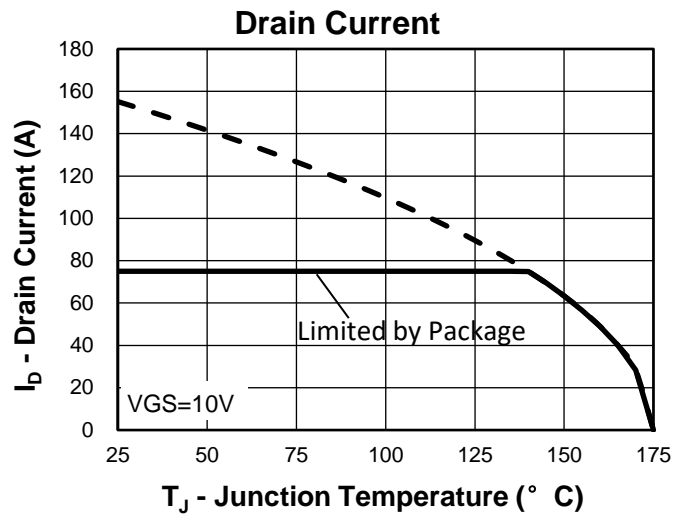
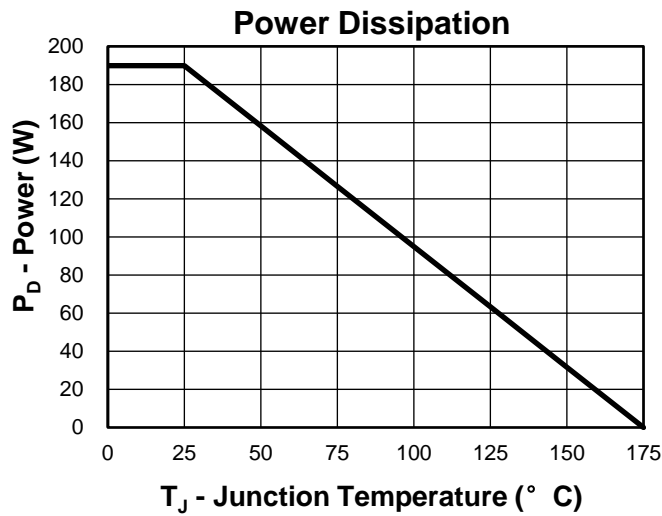


Y =Year,2017-A,2018-B,etc.

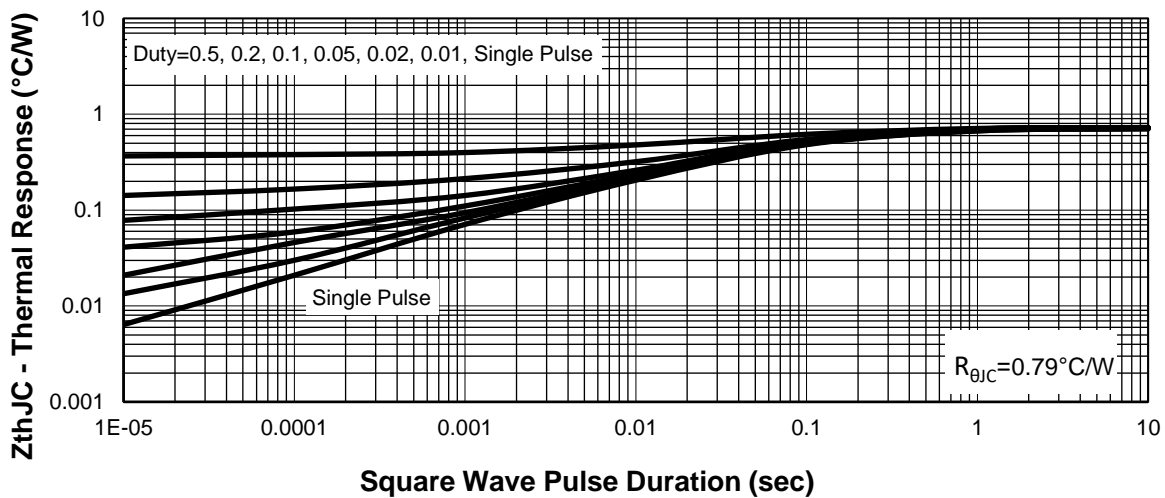
WW =Week.

XXX =Lot number.

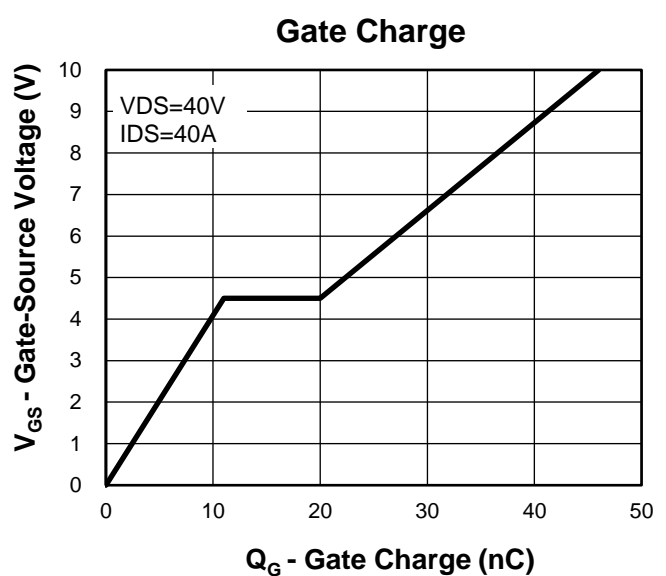
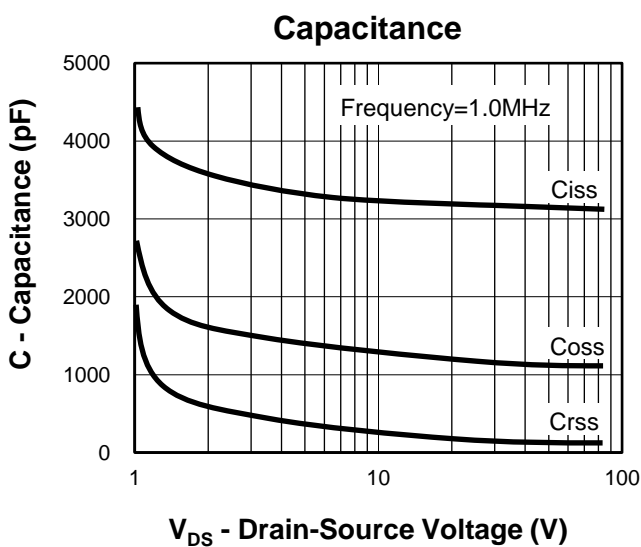
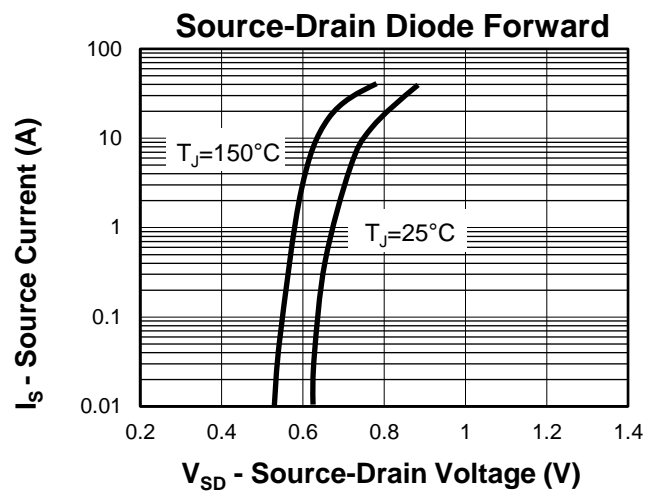
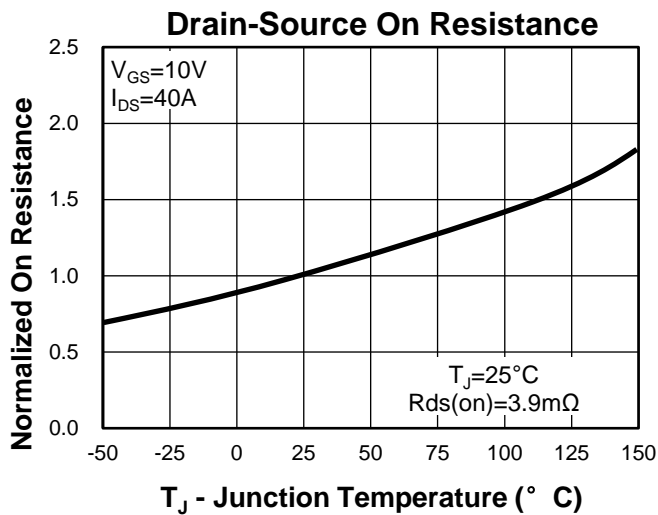
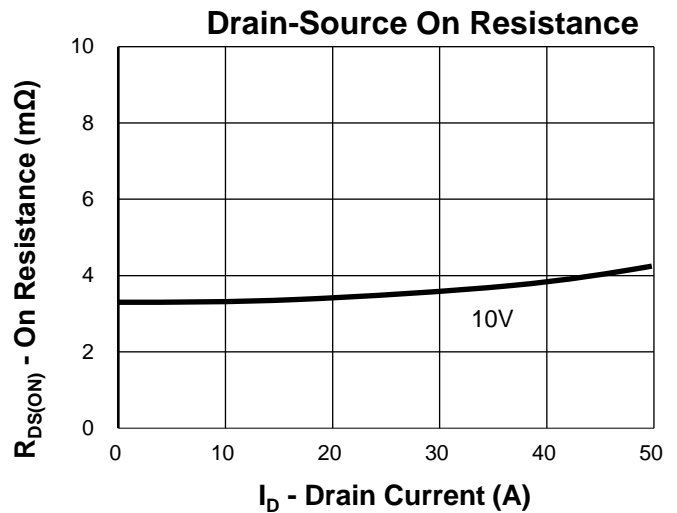
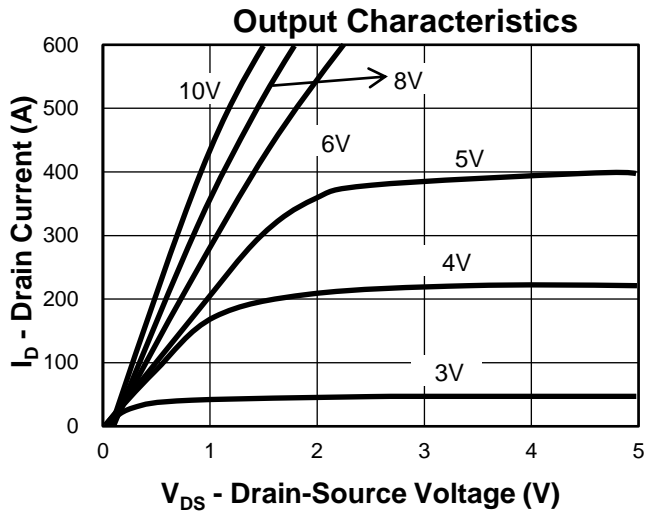
Typical Characteristics



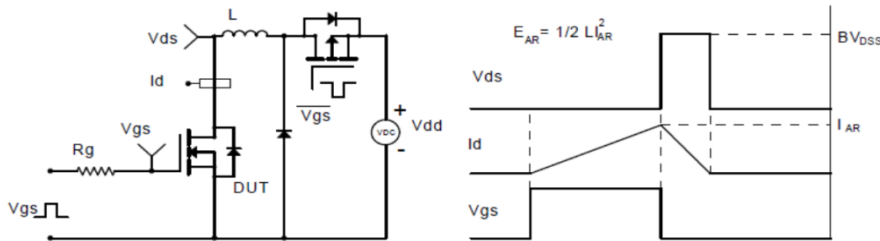
Thermal Transient Impedance



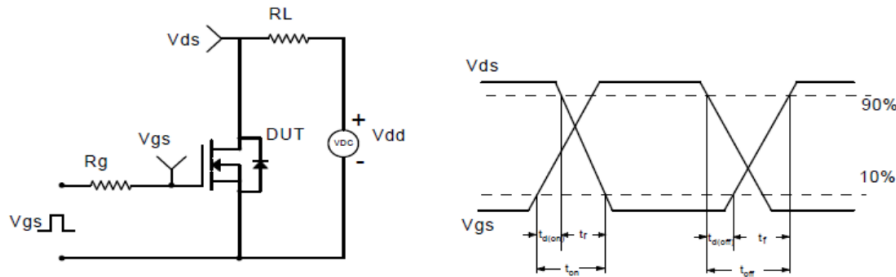
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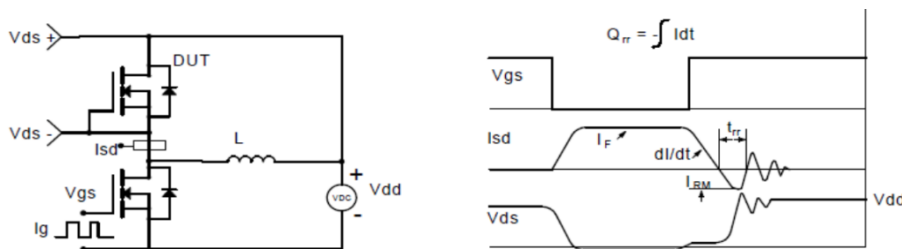
Avalanche Test Circuit and Waveforms



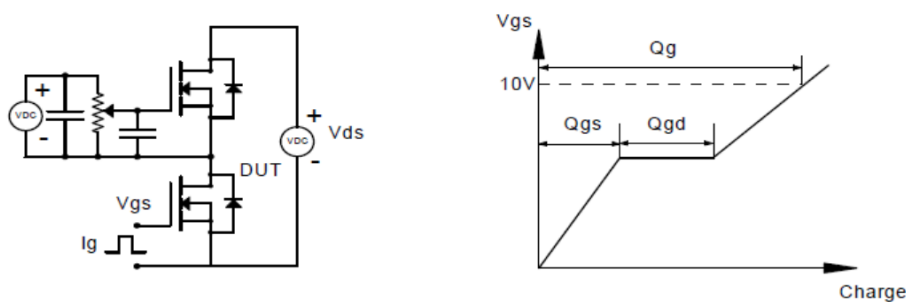
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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