

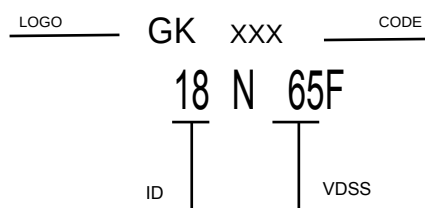
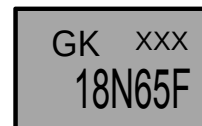
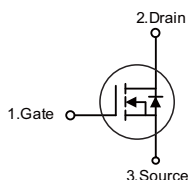
FEATURES

- $R_{DS(ON)} = 0.41\Omega$ (Typ.) @ $V_{GS} = 10V$, $I_D = 9A$
- Fast Switching
- Improved dv/dt Capability
- 100% Avalanche Tested

V_{DSS} 650 V
 I_D 18 A
 $R_{DS(ON)}$ 0.41 Ω

APPLICATION

- Switch Mode Power Supply(SMPS)
- Uninterruptible Power Supply(UPS)
- Power Factor Correction (PFC)



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	650	V
V_{GSS}	Gate-Source Voltage	± 30	
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	$T_C = 25^\circ\text{C}$ 18	A
Mounted on Large Heat Sink			
$I_{DP}^{①}$	300 μs Pulse Drain Current Tested	$T_C = 25^\circ\text{C}$ 72	A
$I_D^{②}$	Continuous Drain Current($V_{GS} = 10V$)	$T_C = 25^\circ\text{C}$ 18	A
		$T_C = 100^\circ\text{C}$ 11.5	
P_D	Maximum Power Dissipation	$T_C = 25^\circ\text{C}$ 260	W
		$T_C = 100^\circ\text{C}$ 104	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.48	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	62.5	$^\circ\text{C/W}$
Drain-Source Avalanche Ratings			
$E_{AS}^{③}$	Avalanche Energy, Single Pulsed	500	mJ

Electrical Characteristics (T_c=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	18N65F			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	650			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =650V, V _{GS} =0V			1	μA
		T _J =125°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	3		5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±30V, V _{DS} =0V			±100	nA
R _{DS(ON)} ④	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =10A		410	500	mΩ
Diode Characteristics						
V _{SD} ④	Diode Forward Voltage	I _{SD} =10A, V _{GS} =0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =18A, dI _{SD} /dt=100A/μs		560		ns
Q _{rr}	Reverse Recovery Charge			4.3		μC
Dynamic Characteristics⑤						
R _G	Gate Resistance	V _{GS} =0V,V _{DS} =0V,F=1MHz		2.8		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =300V, Frequency=1.0MHz		4350		pF
C _{oss}	Output Capacitance			410		
C _{rss}	Reverse Transfer Capacitance			110		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =300V, R _L =100Ω, I _{DS} =18A, V _{GEN} =10V, R _G =4.7Ω		47		ns
t _r	Turn-on Rise Time			81		
t _{d(OFF)}	Turn-off Delay Time			95		
t _f	Turn-off Fall Time			52		
Gate Charge Characteristics⑤						
Q _g	Total Gate Charge	V _{DS} =520V, V _{GS} =10V, I _{DS} =18A		128		nC
Q _{gs}	Gate-Source Charge			43		
Q _{gd}	Gate-Drain Charge			52		

Notes: ①Pulse width limited by safe operating area.

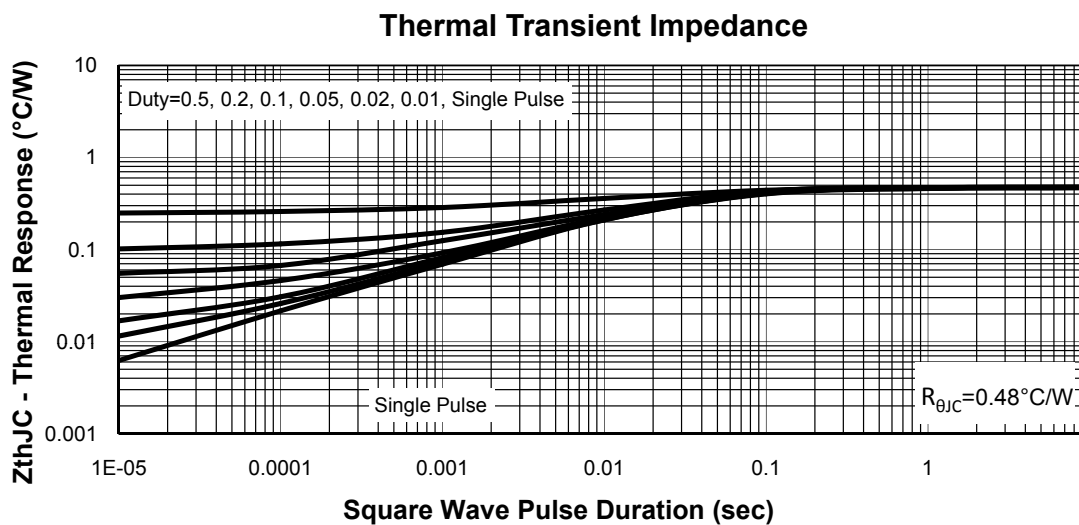
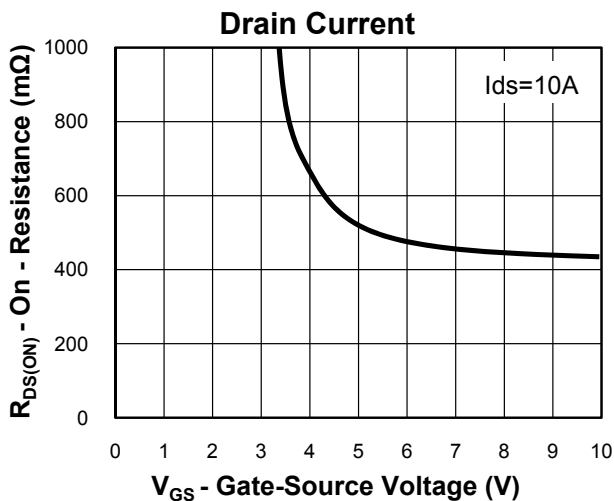
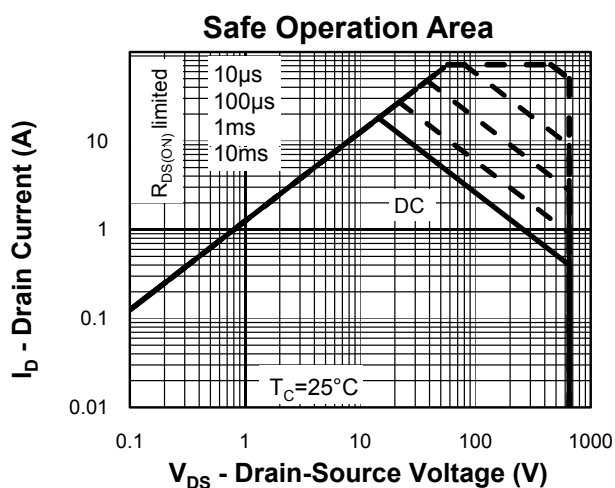
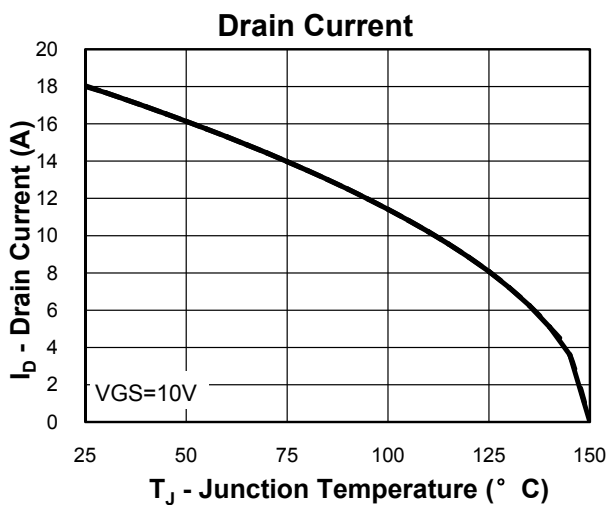
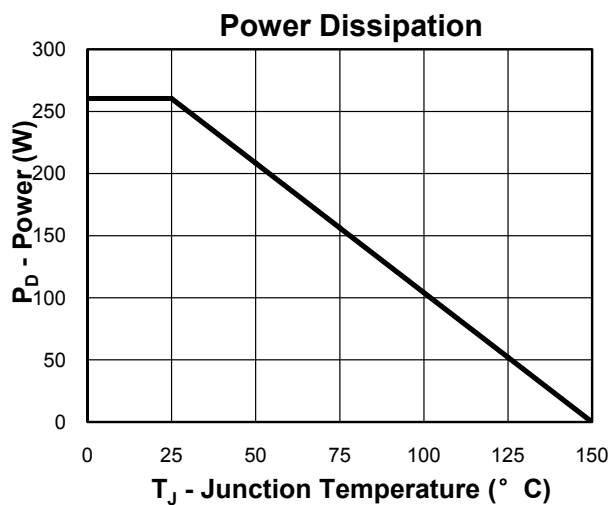
②Calculated continuous current based on maximum allowable junction temperature.

③Limited by T_{Jmax}, I_{AS}=10A, V_{DD}=100V, R_G=50Ω, Starting T_J=25°C.

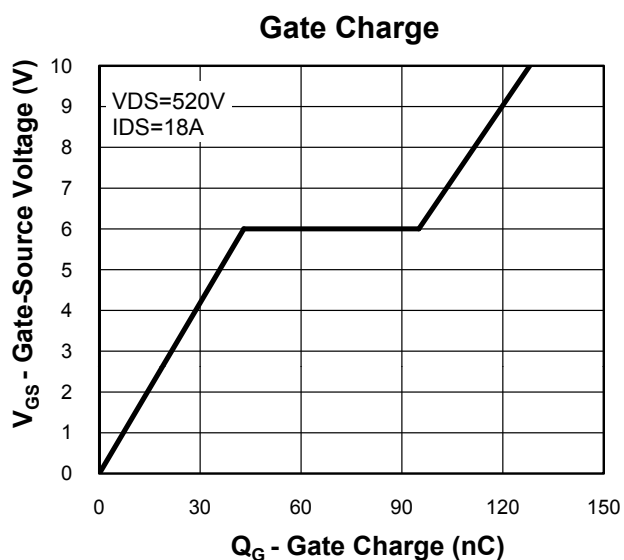
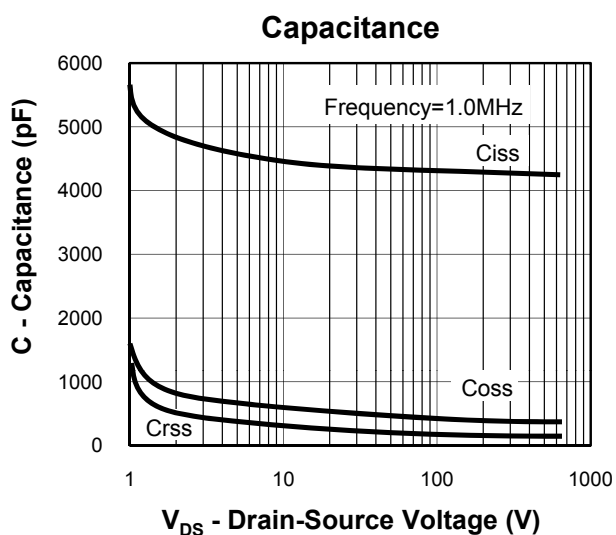
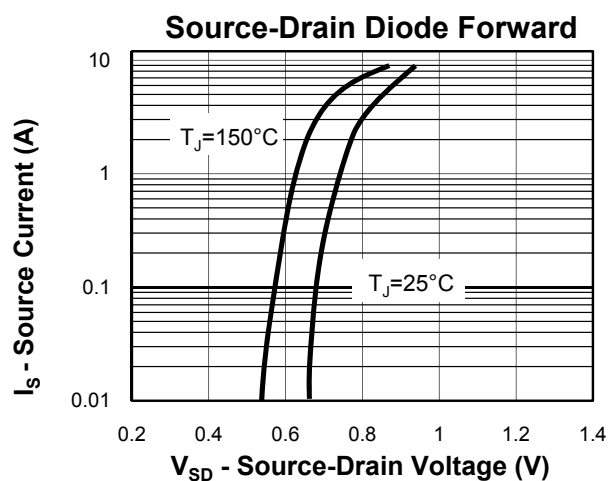
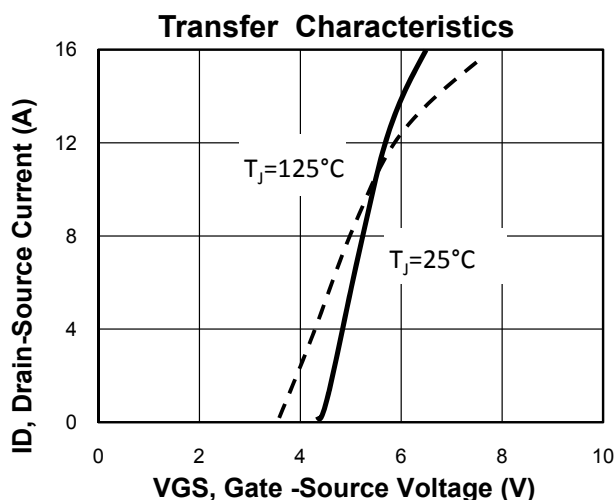
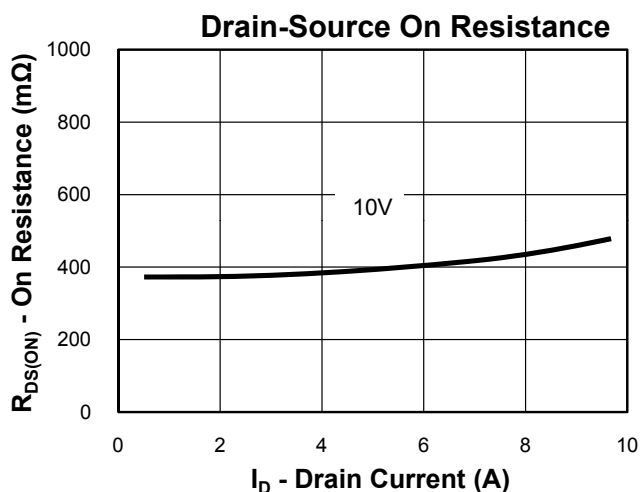
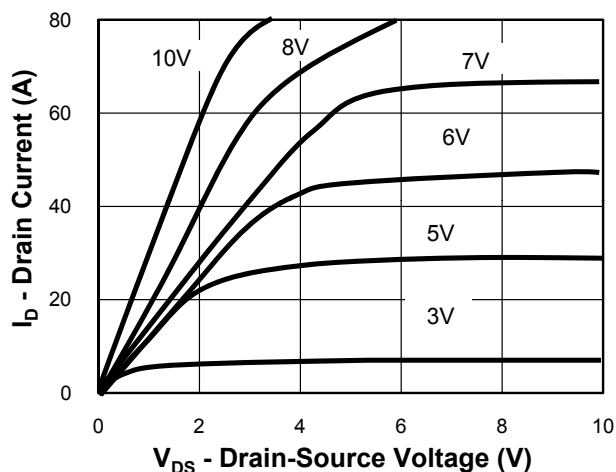
④Pulse test; Pulse width ≤ 300μs, duty cycle ≤ 2%.

⑤Guaranteed by design, not subject to production testing.

RATING AND CHARACTERISTIC CURVES

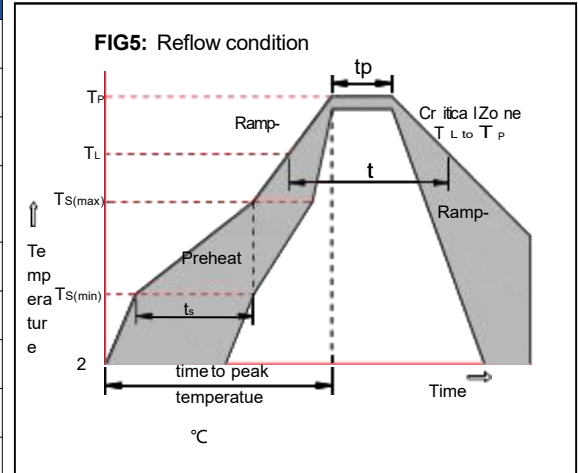


RATING AND CHARACTERISTIC CURVES



Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout

