

Features

- Fast Switching
- Low ON Resistance
- Low Gate Charge
- 100% Single Pulse avalanche energy Test

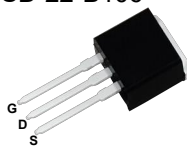
V_{DS} 650 V
 I_D 7.0 A
 $R_{DS(ON)}$ 1.13 Ω

GK XXX
7N65

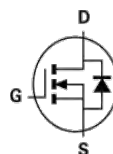
Mechanical Data

- Case: Molded plastic
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275°C maximum, 10s per JESD 22-B106

LOGO GK XXX CODE
7 N 65
ID VDSS



TO-262



Equivalent Circuit

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
		251/252	
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 30	V
Continue Drain Current	I_D	7	A
Pulsed Drain Current (Note1)	I_{DM}	28	A
Power Dissipation	P_D	108	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	350	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.16	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	100	°C/W

Note1: Pulse test: 300 μ s pulse width, 2 % duty cycle

Electrical Characteristics T_J=25°C unless otherwise specified

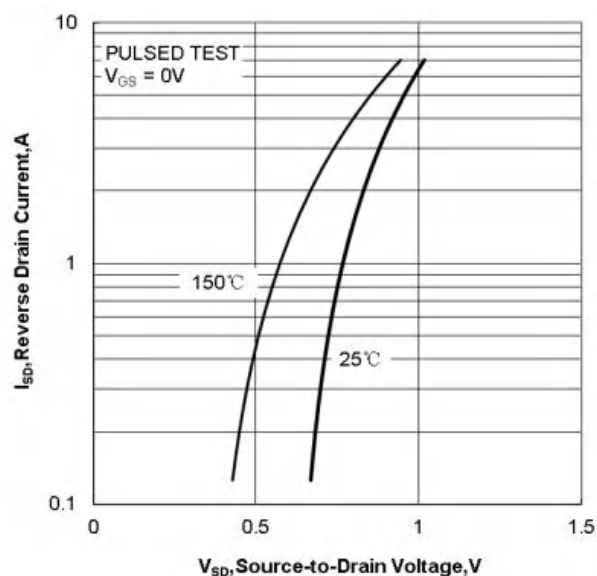
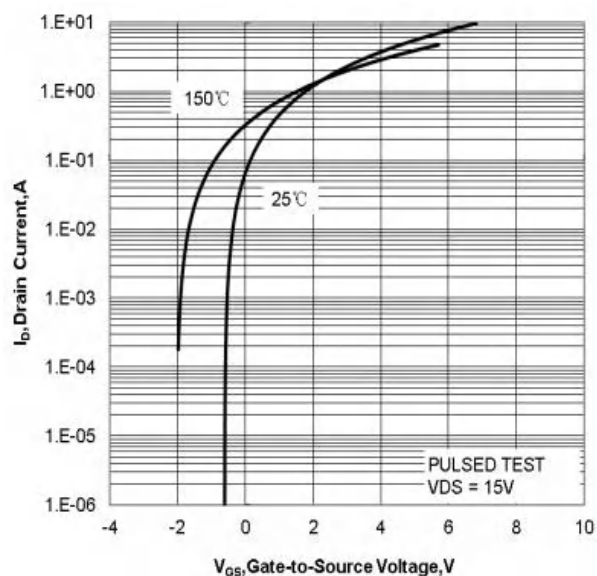
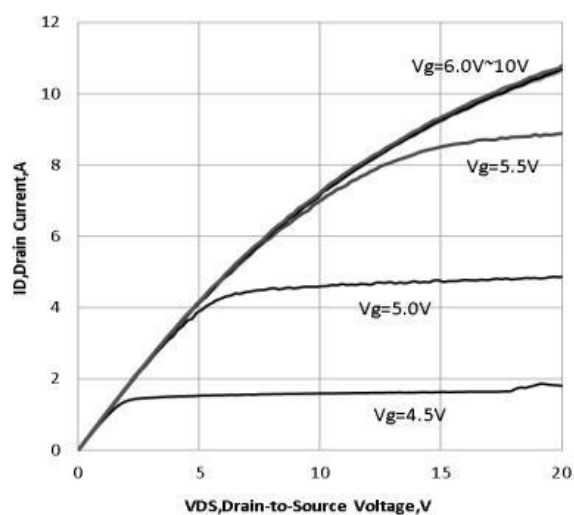
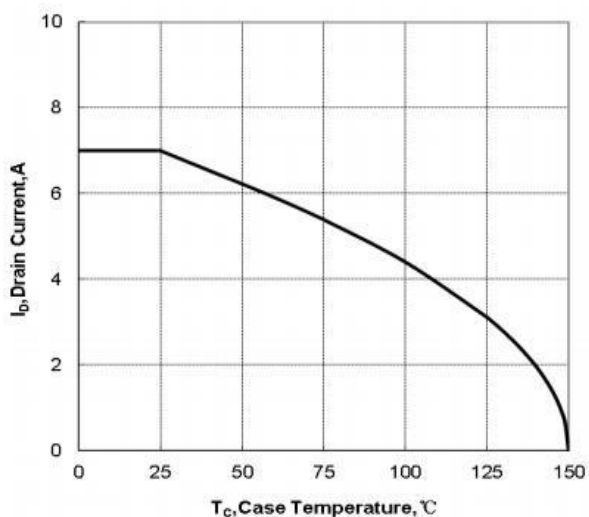
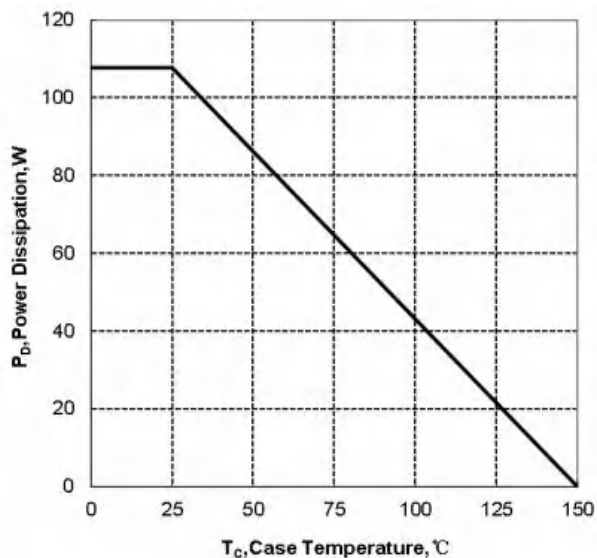
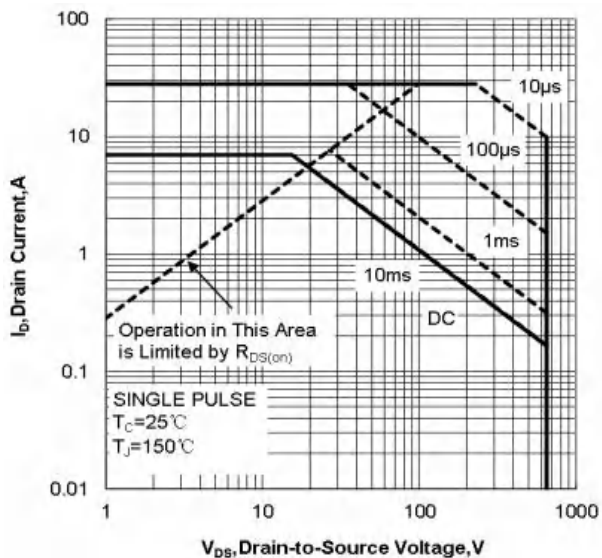
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	BV_{DSS}	650	-	-	V
Drain-Source Leakage Current	$V_{DS} = 650\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS} = 10\text{ V}, I_D = 3.5\text{ A}$	$R_{DS(on)}$	-	1.13	1.35	Ω
Forward Transconductance	$V_{DS} = 15\text{ V}, I_D = 7\text{ A}$	g_{fs}	-	6.5	-	S
Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V},$ $f = 1\text{ MHz}$	C_{iss}	-	1264	-	pF
Output Capacitance		C_{oss}	-	92	-	pF
Reverse Transfer Capacitance		C_{rss}	-	5.3	-	pF
Turn-on Delay Time(Note2)	$I_D = 7\text{ A}, V_{DD} = 325\text{ V},$ $R_G = 10\Omega$	$t_{d(ON)}$	-	18	-	ns
Rise Time(Note2)		t_r	-	19	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	39	-	ns
Fall Time(Note2)		t_f	-	18	-	ns
Total Gate Charge(Note2)	$I_D = 7\text{ A}, V_{DD} = 520\text{ V},$ $V_{GS} = 10\text{ V}$	Q_G	-	23	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	5	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	9	-	nC

Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

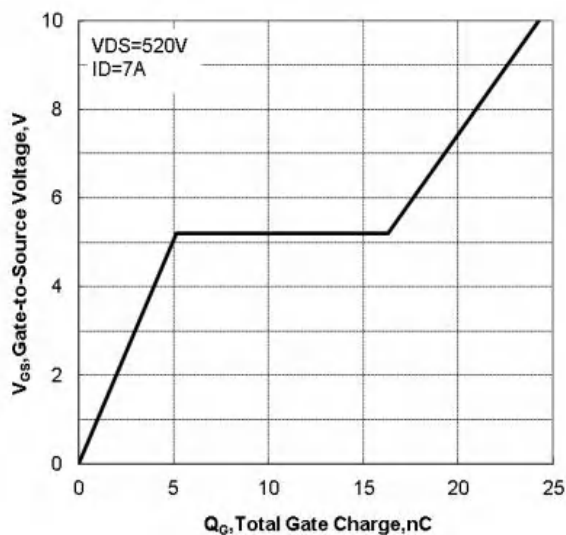
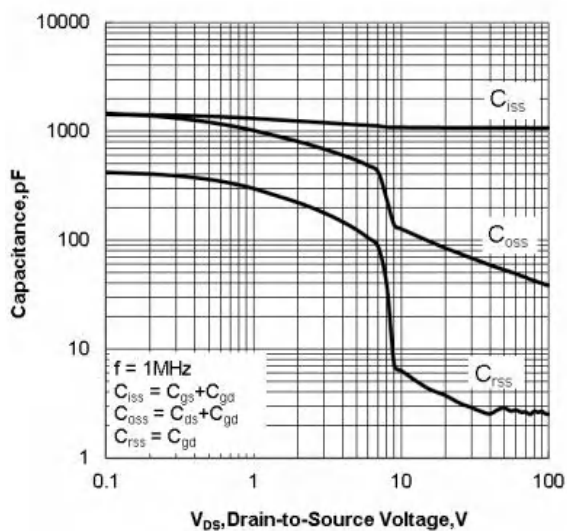
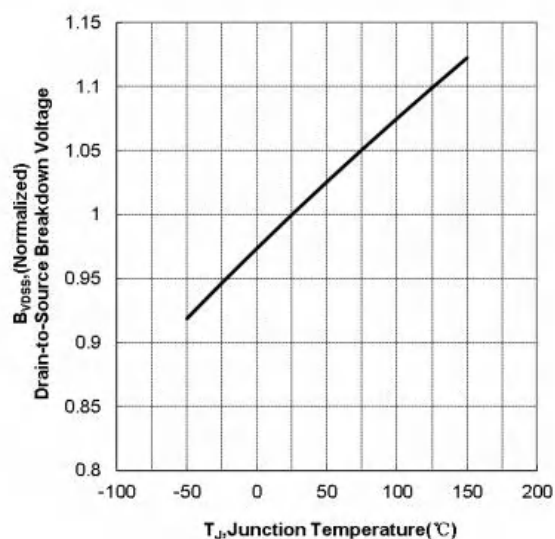
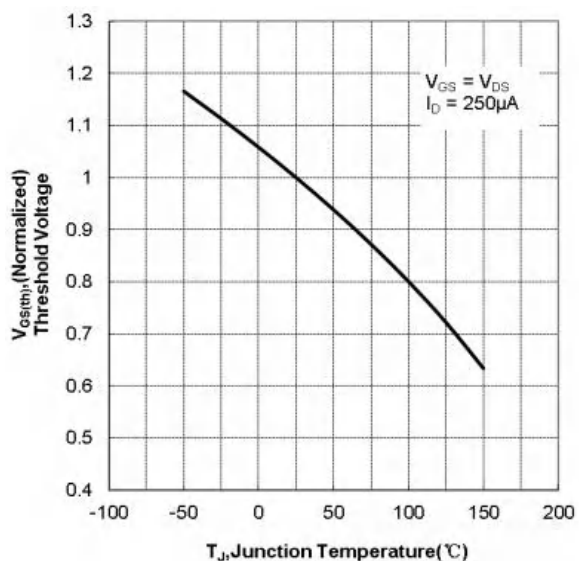
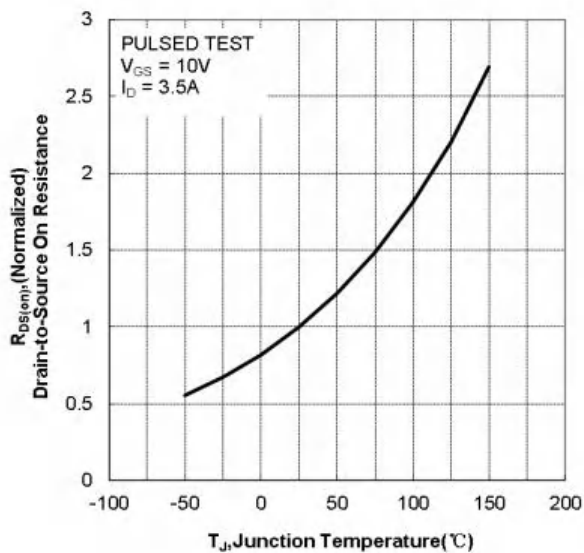
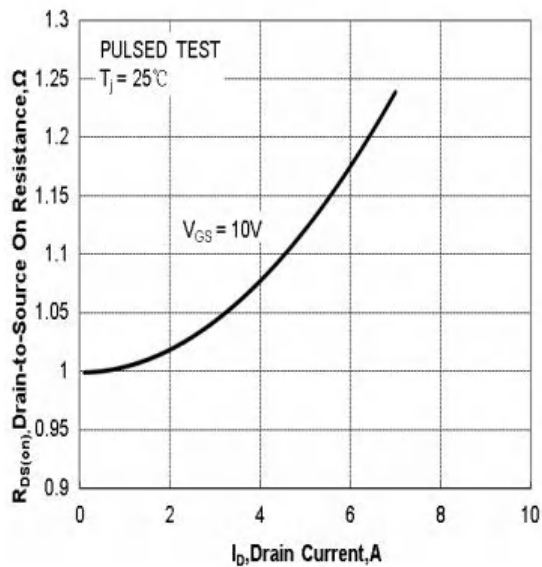
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current	$T_J = 25^\circ\text{C}$	I_S	-	-	7	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	28	A
Drain-Source Diode Forward Voltage	$I_{SD} = 7\text{ A}$	V_{SD}	-	-	1.4	V
Reverse Recovery Time(Note2)	$I_{SD} = 7\text{ A}, V_{GS} = 0\text{ V},$	t_{rr}	-	420	-	ns
Reverse Recovery Charge(Note2)	$dI_F / dt = 100\text{ A}/\mu\text{s}$	Q_{rr}	-	1.9	-	μC

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATING AND CHARACTERISTIC CURVES

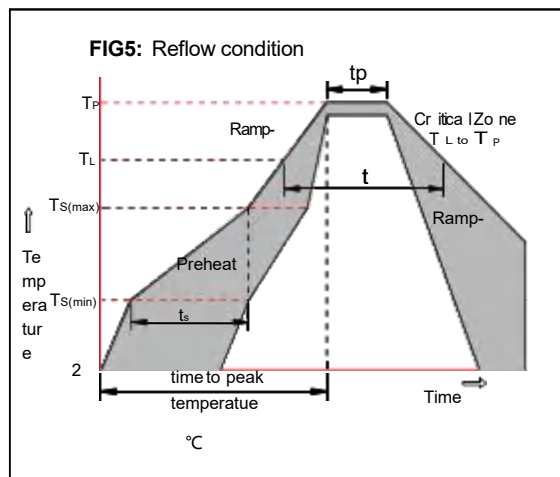


RATING AND CHARACTERISTIC CURVES



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

T0-262

Dim.	Min.	Max.
A	4.4	4.6
A1	2.4	2.6
B	0.75	0.85
B1	1.2	1.4
C	0.35	0.42
C1	1.25	1.35
D	8.5	9.5
E	10.15	10.35
H	23	25
L	13	14
L1	2.8	3.5
L2	1.2	1.5
All Dimensions in millimeter		