Features

- ƒLow gate charge
- ƒ100% avalanche tested
- ƒImproved dv/dt capability
- ƒRoHS compliant
- ƒHalogen free package
- ƒJEDEC Qualification
- ƒImproved ESD performance

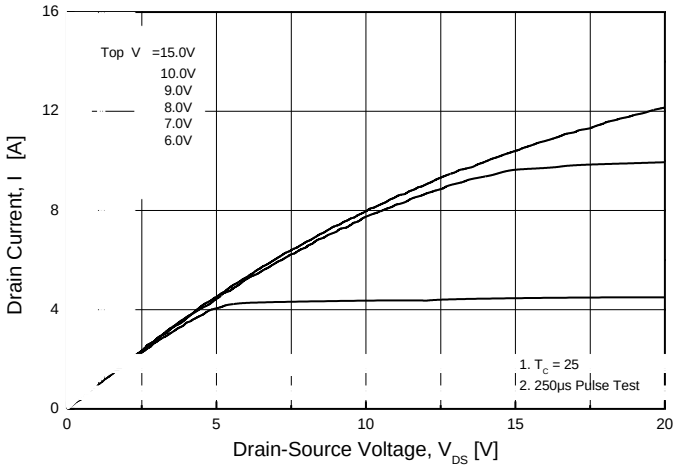
Absolute Maximum Ratings

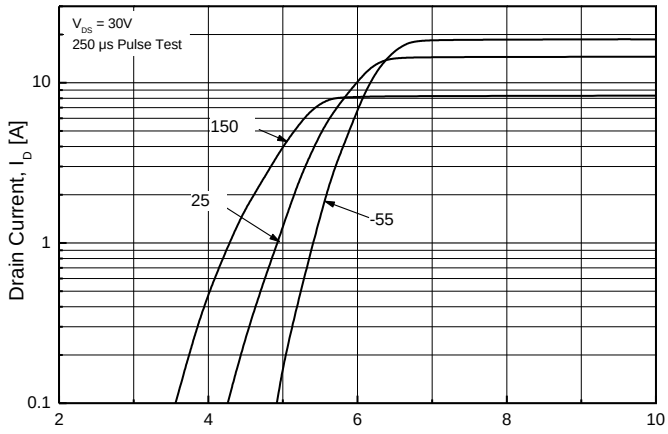
Parameter		Symbol	TMP7N65AZ(G)	TMPF7N65AZ(G)	Unit
Drain-Source Voltage		V_{DSS}	650		V
Gate-Source Voltage		V_{GS}	~~–~~30		V
Continuous Drain Current	T_C = 25				

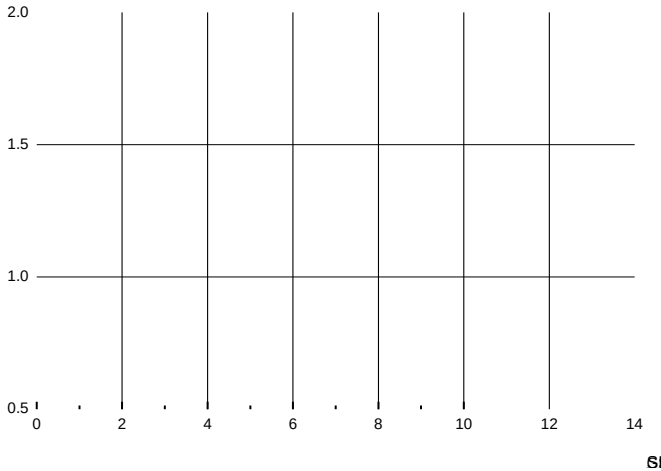
Electrical Characteristics : T_C=25 , unless otherwise noted

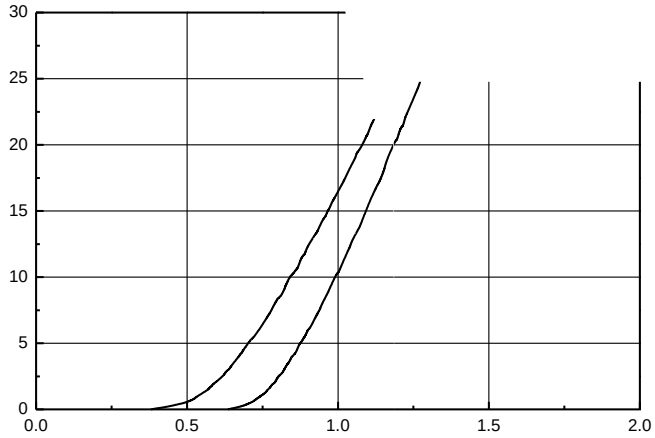
Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250 µA	650	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 650 V, V_{GS} = 0 V	--	--	1	µA
		V_{DS} = 520 V, T_C = 125°C	--	--	10	µA
Forward Gate-Source Leakage Current	I_{GSSF}	V_{GS} = 30 V, V_{DS} = 0 V	--	--	100	µA
Reverse Gate-Source Leakage Current	I_{GSSR}	V_{GS} = -30 V, V_{DS} = 0 V	--	--	-100	µA
ON						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	3	--	5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 3.25 A	--	1.2	1.4	Ω
Forward Transconductance (Note 4)	g_{FS}	V_{DS} = 30 V, I_D = 3.25 A	--	10	--	S
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0 MHz	--	1072	--	pF
Output Capacitance	C_{oss}		--	103	--	pF
Reverse Transfer Capacitance	C_{rss}		--	12	--	pF
SWITCHING						
Turn-On Delay Time (Note 4,5)	$t_{d(on)}$	V_{DD} = 325 V, I_D = 6.5 A, R_G = 25 Ω	--	35	--	ns
Turn-On Rise Time (Note 4,5)	t_r		--	46	--	ns
Turn-Off Delay Time (Note 4,5)	$t_{d(off)}$		--	82	--	ns
Turn-Off Fall Time (Note 4,5)	t_f		--	27	--	ns
Total Gate Charge (Note 4,5)	Q_g	V_{DS} = 520V, I_D = 6.5 A, V_{GS} = 10 V	--	22	--	nC
Gate-Source Charge (Note 4,5)	Q_{gs}		--	5	--	nC
Gate-Drain Charge (Note 4,5)	Q_{gd}		--	10	--	nC
SOURCE DRAIN DIODE						
Maximum Continuous Drain-Source Diode Forward Current	I_S	----	--	--	6.5	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	----	--	--	26	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 6.5 A	--	--	1.5	V
Reverse Recovery Time (Note 4)	t_{rr}	V_{GS} = 0 V, I_S = 6.5 A, dI_F / dt = 100 A/µs	--	345	--	ns
Reverse Recovery Charge (Note 4)	Q_{rr}		--	2.6	--	µC

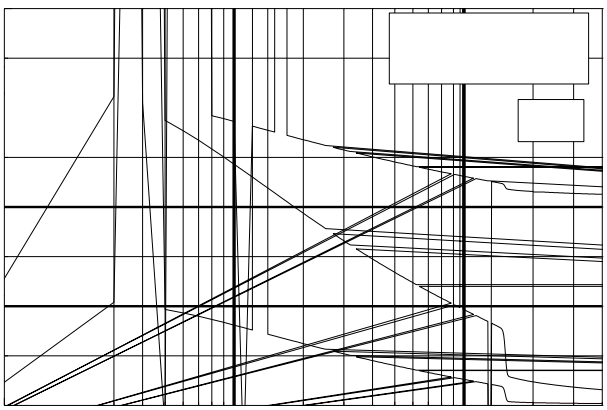
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=17.1mH, I_{AS} = 6.5A, V_{DD} = 50V, R_G = 25Ω, Starting T_J= 25
3 I_{SD} ≤ 6.5A, di/dt ≤ 200A/µs , V_{DD} ≤ BV_{DS}, Starting T_J= 25
4. Pulse Test :Pulse width ≤ 300µs, Duty Cycle ≤ 2%
5. Essentially Independent of Operating Temperature Typical Characteristics

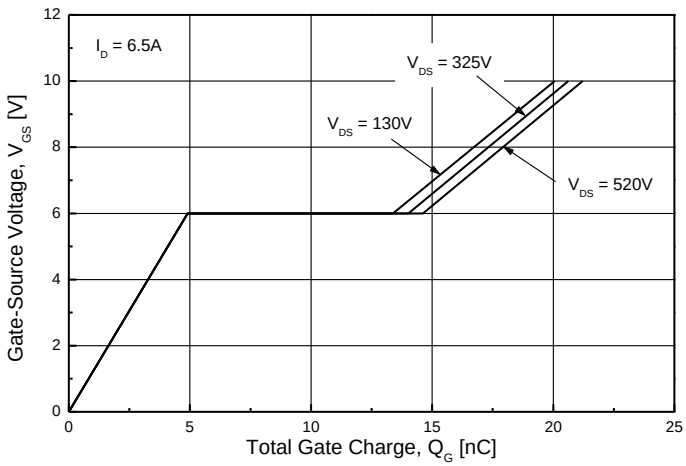

Top V =15.0V
10.0V
9.0V
8.0V
7.0V
6.0V
1. T_C = 25
2. 250μs Pulse Test
Drain Current, I [A]
Drain-Source Voltage, V_DS [V]

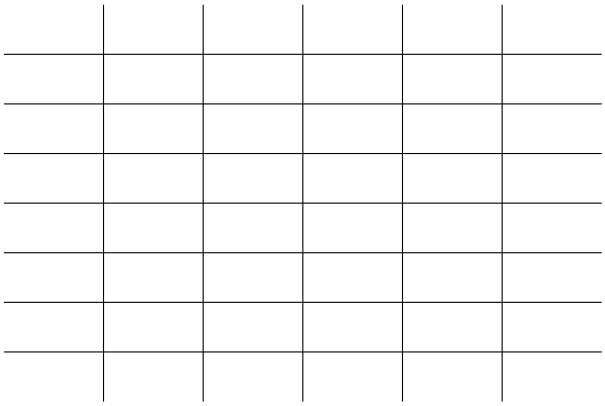

V_DS = 30V
250 μs Pulse Test
150
25
-55
Drain Current, I_D [A]

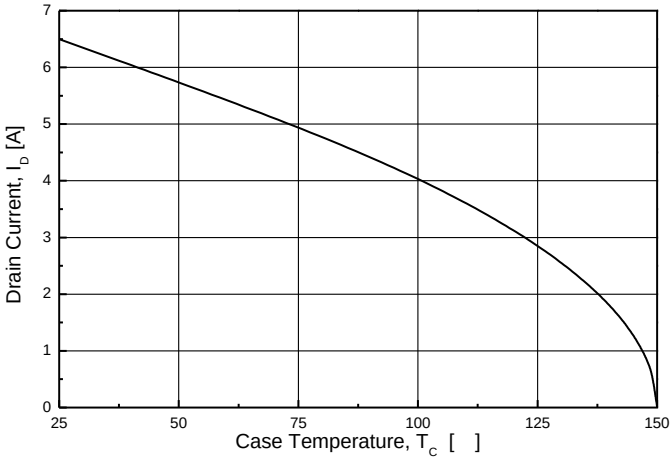


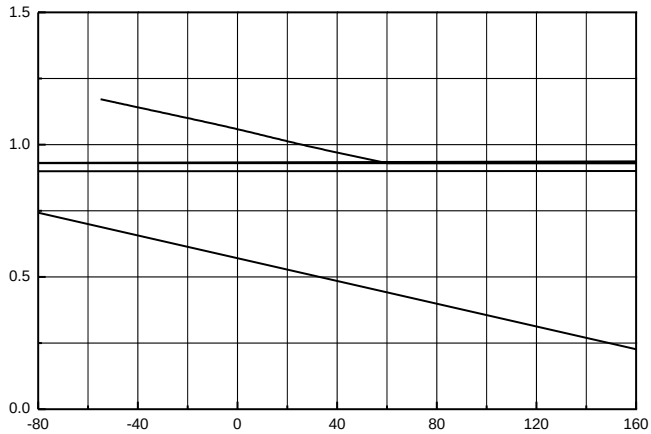




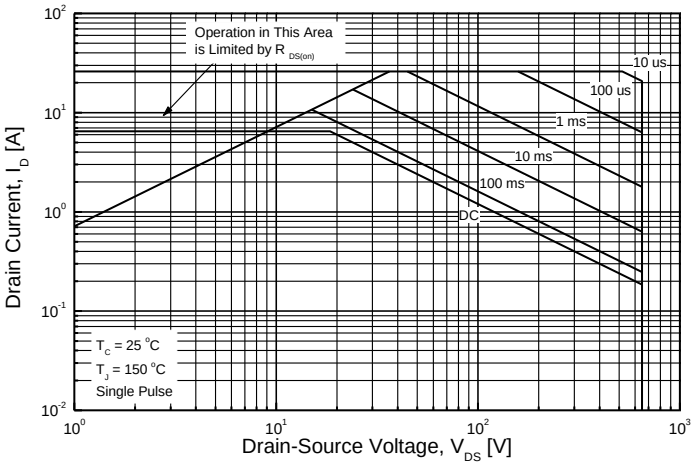

I_D = 6.5A
V_DS = 325V
V_DS = 130V
V_DS = 520V
Gate-Source Voltage, V_GS [V]
Total Gate Charge, Q_G [nC]







TMP7N65AZ(G)



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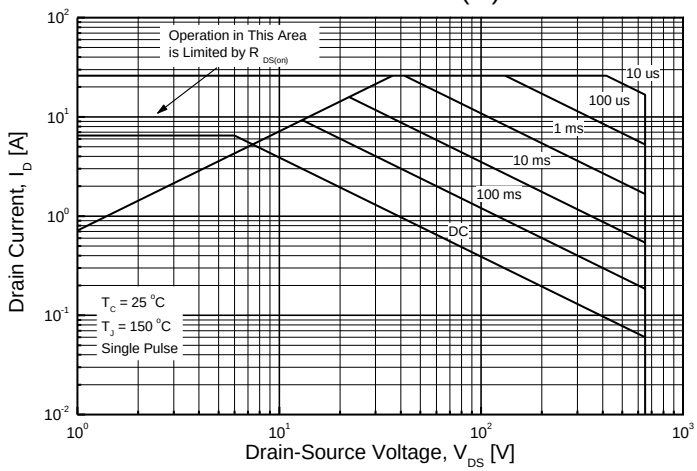

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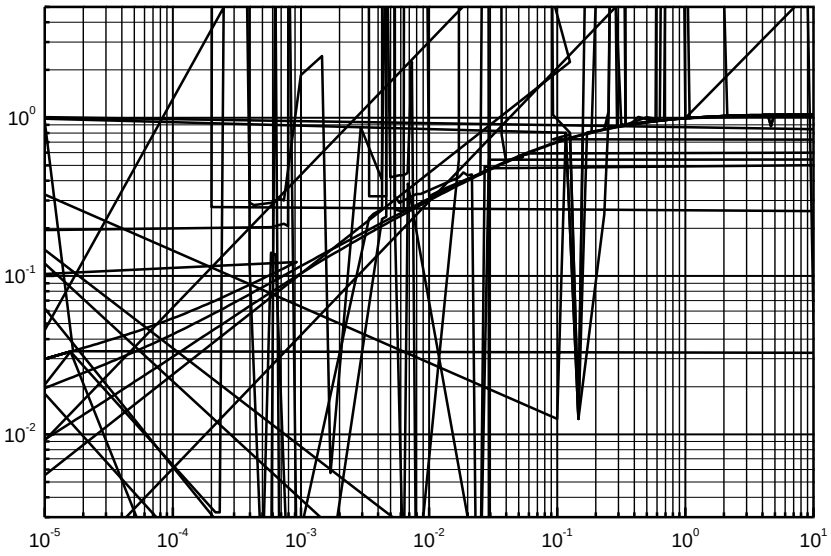

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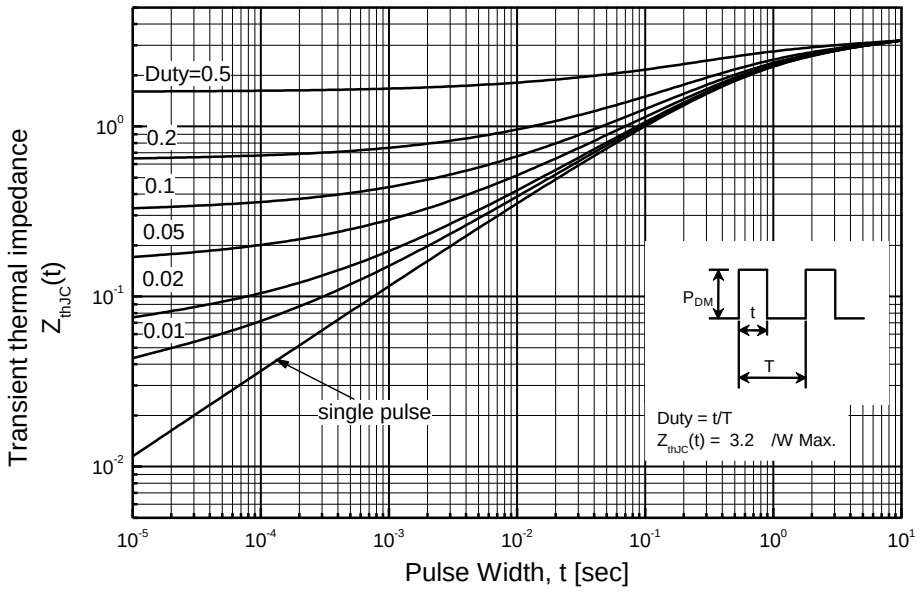
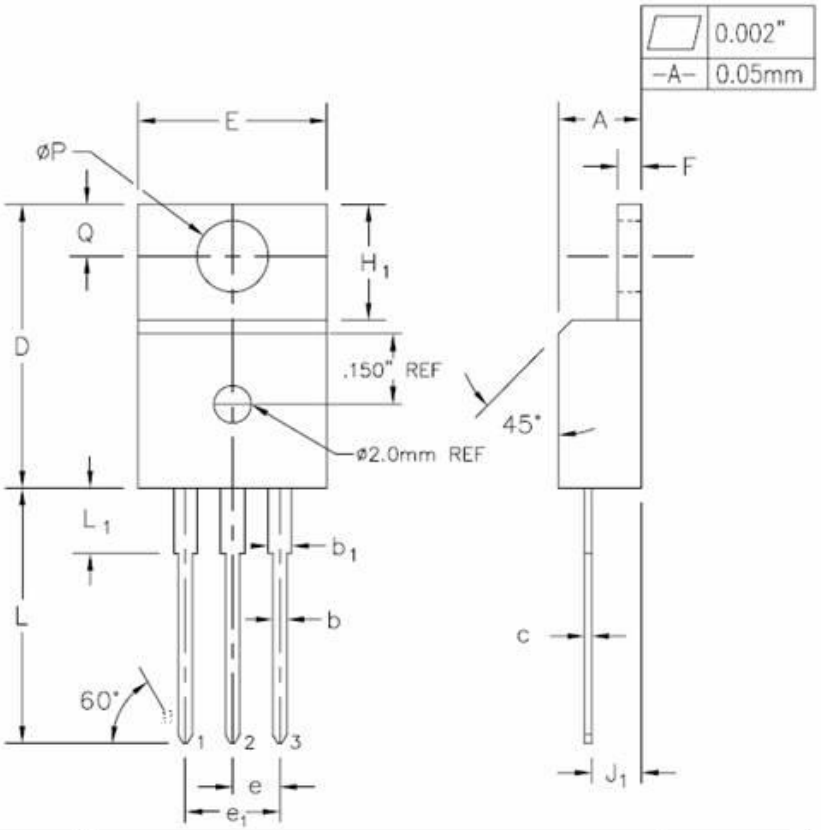


TO-220AB-3L MECHANICAL DATA



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.170	0.180	4.32	4.57	
b	0.028	0.036	0.71	0.91	
b_1	0.045	0.055	1.15	1.39	
c	0.014	0.021	0.36	0.53	
D	0.590	0.610	14.99	15.49	
E	0.395	0.415	10.04	10.54	
e	0.100 TYP.		2.54 TYP.		
e_1	0.200 BSC		5.08 BSC		
F	0.048	0.054	1.22	1.37	
H_1	0.235	0.255	5.97	6.47	
J_1	0.100	0.110	2.54	2.79	
L	0.530	0.550	13.47	13.97	
L_1	0.130	0.150	3.31	3.81	
øP	0.149	0.153	3.79	3.88	
Q	0.102	0.112	2.60	2.84	

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