Features

- Low gate charge
- 100% avalanche tested
- Improved dv/dt capability
- RoHS compliant
- Halogen free package
- JEDEC Qualification

Absolute Maximum Ratings

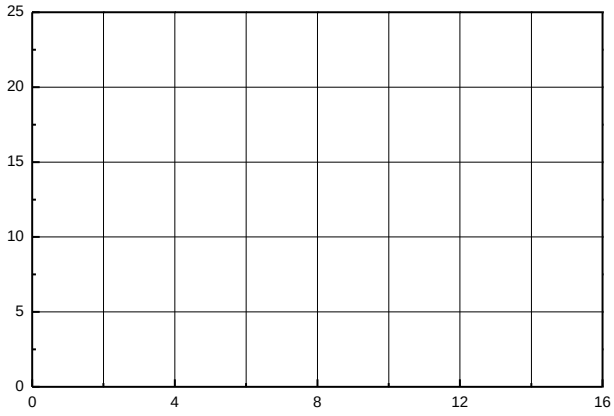
Parameter		Symbol	TMP630Z(G)	TMPF630Z(G)	Unit
Drain-Source Voltage		V_{DSS}	200		V
Gate-Source Voltage		V_{GS}	30		V
Continuous Drain Current	T_C = 25	I_D	9	9 *	A
	T_C = 100		4.4	4.4 *	A
Pulsed Drain Current (Note 1)		I_{DM}	36	36 *	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	162		mJ
Repetitive Avalanche Current (Note 1)		I_{AR}	9		A
Repetitive Avalanche Energy (Note 1)		E_{AR}	5.2		mJ
Power Dissipation	T_C = 25	P_D	52	17.3	W
	Derate above 25		0.41	0.138	W/
Peak Diode Recovery dv/dt (Note 3)		dv/dt	4.5		V/ns
Operating Junction and Storage Temperature Range		T_J, T			

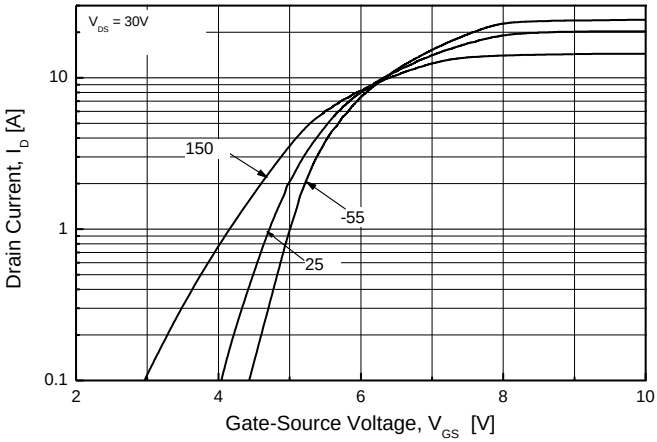
Electrical Characteristics : T_C=25 , unless otherwise noted

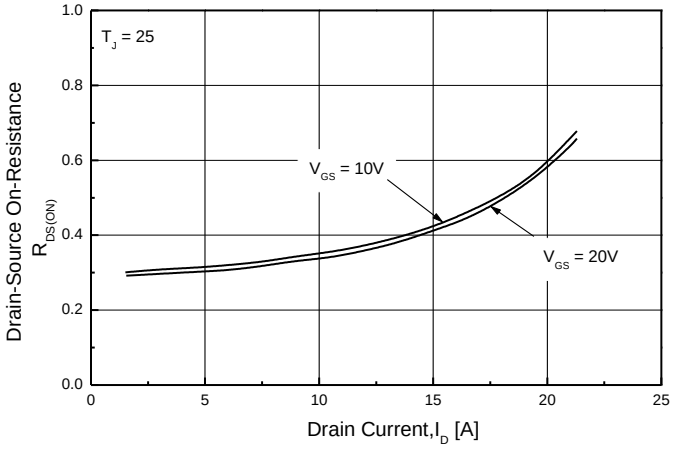
Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250 µA	200	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 200 V, V_{GS} = 0 V	--	--	1	µA
		V_{DS} = 160 V, T_C = 125°C	--	--	10	µA
Forward Gate-Source Leakage Current	I_{GSSF}	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 = 4.5 A	--	0.33	0.4	Ω
Forward Transconductance (Note 4)	g_{FS}	V_{DS} = 30 V, I_D = 4.5 A	--	4	--	S
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V				

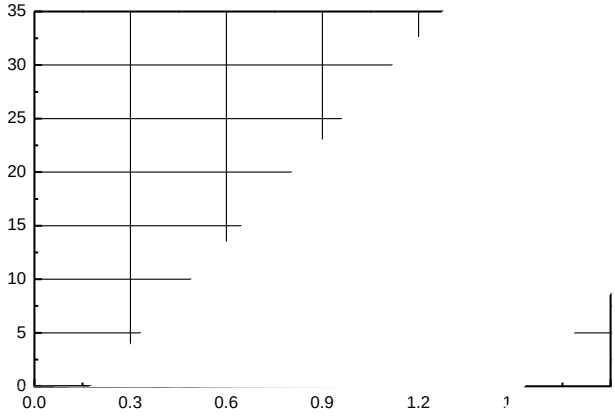
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=3mH, I_{AS} = 9A, V_{DD} = 50V, R_G = 25 , Starting T_J= 25
3 I_{SD} 9A, di/dt µs , V_{DD} $_{DS}$, Starting T_J= 25
µ
5. Essentially Independent of Operating Temperature Typical Characteristics

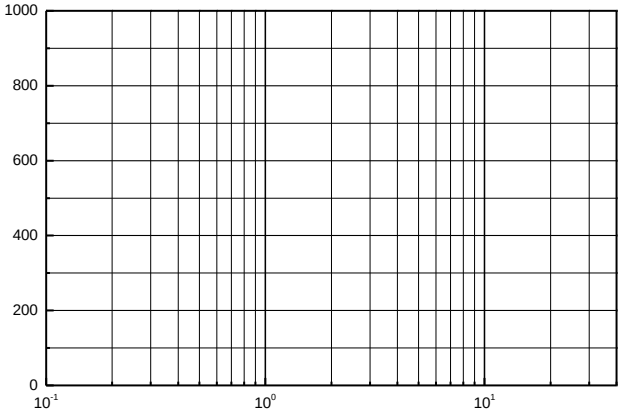
\l.012 Tcl(GS)\l TJETBT/F1 9 Tf1 0 0 1 326249 485.1 Tm 0 Tcl( )\l TJETBT1 0 0 1 225.101415.1 Tml(=)9(2)-3(V),\l TJETBT1 0 0 1 349877 515.1 Tml( )\l TJET EMC /P <</MCID 134/Lang (en-S)>>BDC

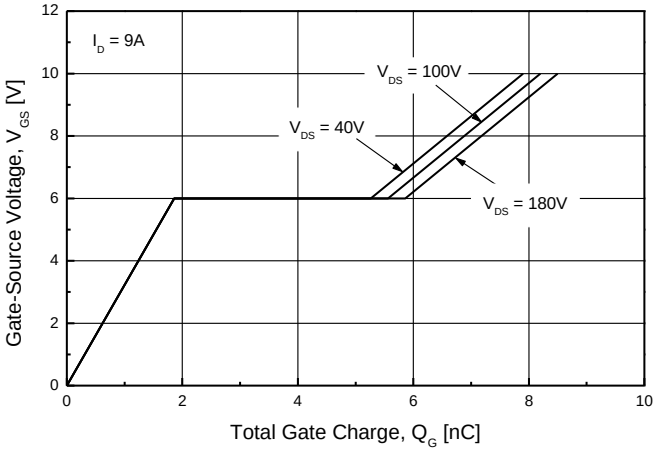

25
20
15
10
5
0
0
4
8
12
16

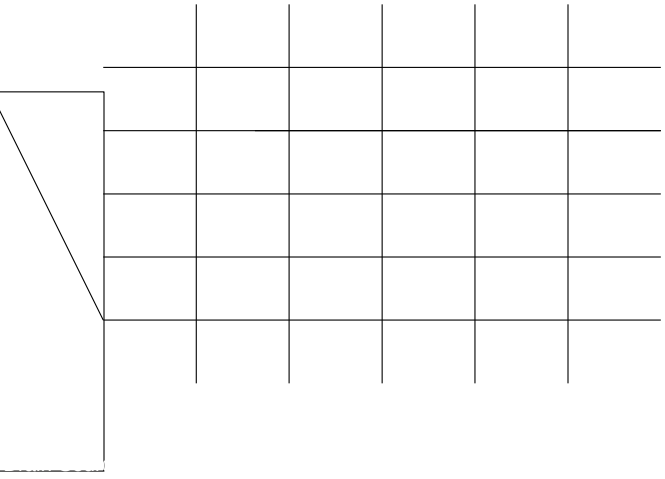

V_DS = 30V
10
1
0.1
150
-55
25
Drain Current, I_D [A]
2
4
6
8
10
Gate-Source Voltage, V_GS [V]

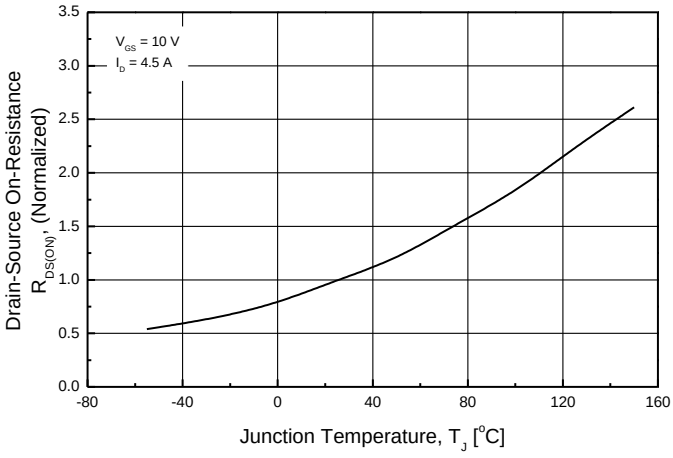

T_J = 25
V_GS = 10V
V_GS = 20V
Drain-Source On-Resistance
R_DS(ON)
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
Drain Current,I_D [A]

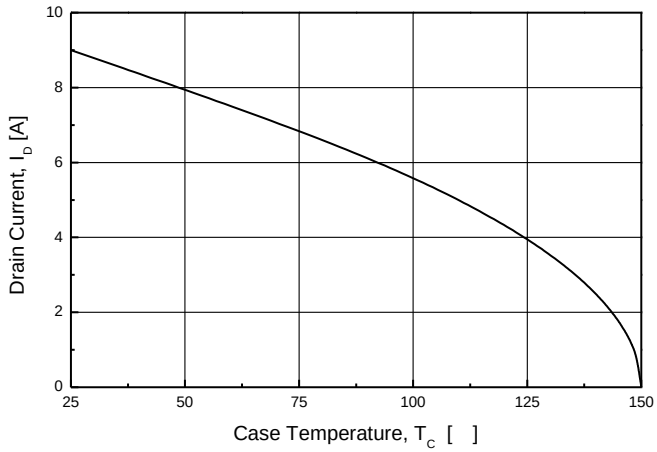

35
30
25
20
15
10
5
0
0.0
0.3
0.6
0.9
1.2

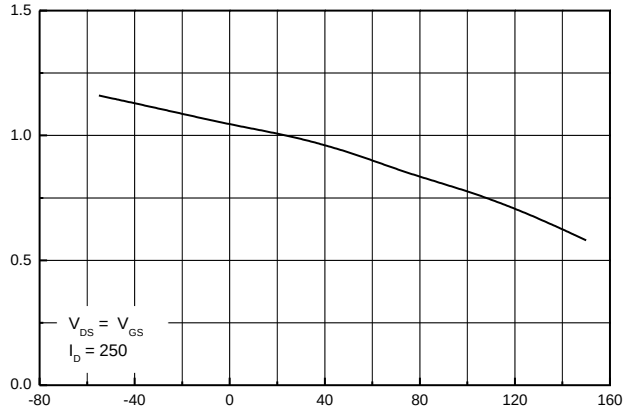

1000
800
600
400
200
0
10^-1
10^0
10^1

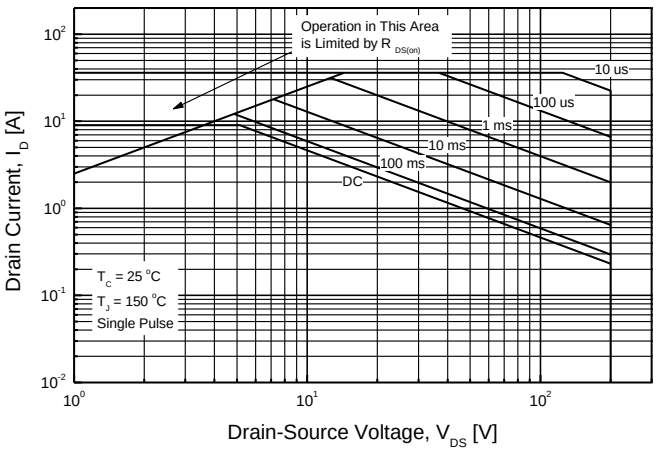

I_D = 9A
V_DS = 100V
V_DS = 40V
V_DS = 180V
Gate-Source Voltage, V_GS [V]
12
10
8
6
4
2
0
0
2
4
6
8
10
Total Gate Charge, Q_G [nC]

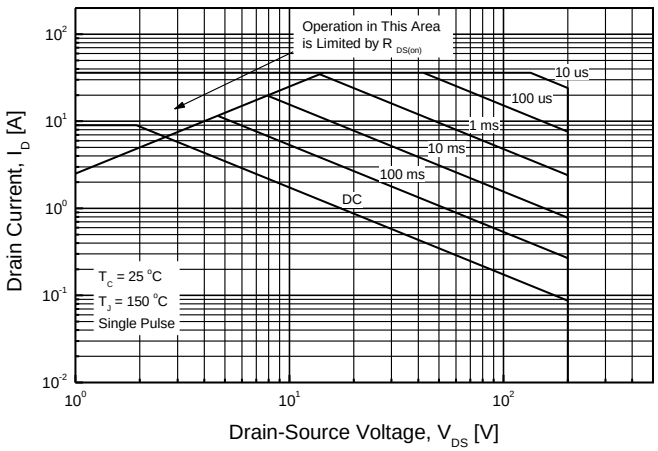



V_{GS} = 10 V
I_D = 4.5 A
Drain-Source On-Resistance
$R_{DS(ON)}$, (Normalized)
Junction Temperature, T_J [°C]

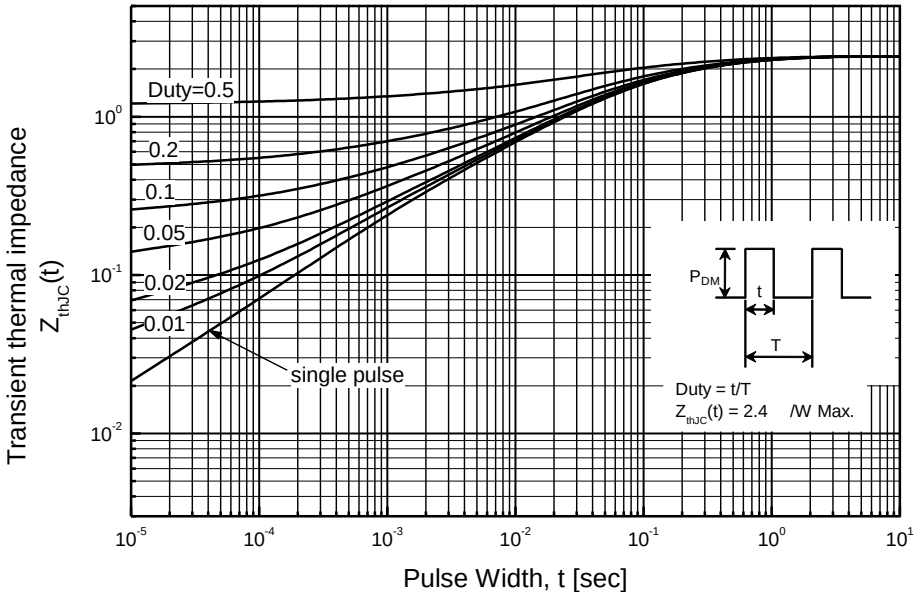

Drain Current, I_D [A]
Case Temperature, T_C [ ]


V_{DS} = V_{GS}
I_D = 250

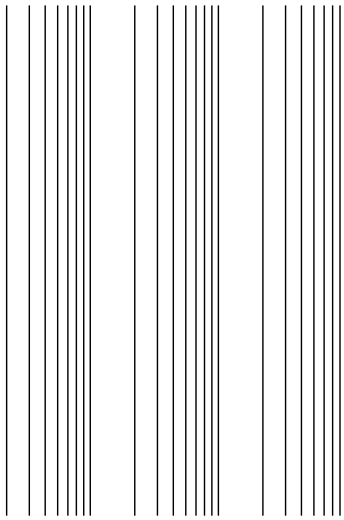

Operation in This Area
is Limited by $R_{DS(on)}$
10 us
100 us
1 ms
10 ms
100 ms
DC
T_C = 25 °C
T_J = 150 °C
Single Pulse
Drain Current, I_D [A]
Drain-Source Voltage, V_{DS} [V]


Operation in This Area
is Limited by $R_{DS(on)}$
10 us
100 us
1 ms
10 ms
100 ms
DC
T_C = 25 °C
T_J = 150 °C
Single Pulse
Drain Current, I_D [A]
Drain-Source Voltage, V_{DS} [V]

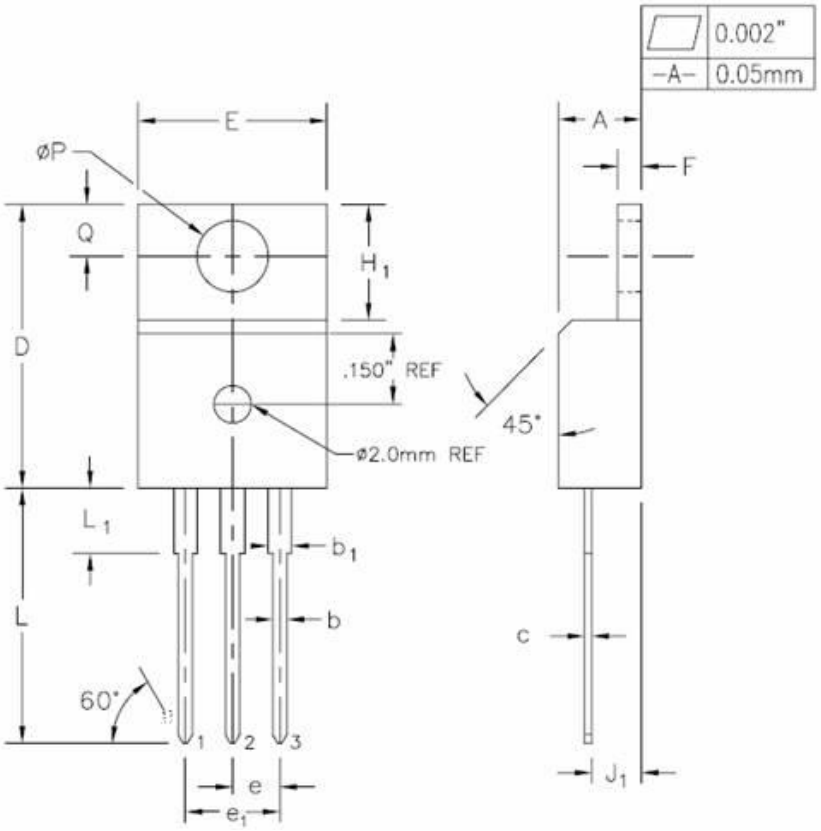
TMP630Z(G)



TMPF630Z(G)



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	0.410	10.04	10.41	
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	

TO-220F-3L MECHANICAL DATA