TMP11N50/TMPF11N50
TMP11N50G/TMPF11N50G

Features

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

V_{DSS} = 550 V @T_{jmax}
I_D = 11A
$R_{DS(ON)}$ = 0.67 (max) @ V_{GS}= 10 V

Absolute Maximum Ratings

Parameter		Symbol	TMP11N50(G)	TMPF11N50(G)	Unit
Drain-Source Voltage		V_{DSS}	500		V
Gate-Source Voltage		V_{GS}	±30		V
Continuous Drain Current	T_C = 25 ℃	I_D	11	11 *	A
	T_C = 100 ℃		6	6 *	A
Pulsed Drain Current (Note 1)		I_{DM}	44	44*	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	544		mJ
Repetitive Avalanche Current (Note 1)		I_{AR}	11		A
Repetitive Avalanche Energy (Note 1)		E_{AR}	15.8		mJ
Power Dissipation	T_C = 25 ℃	P_D	158	51.4	W
	Derate above 25 ℃		1.26	0.41	W/℃
Peak Diode Recovery dv/dt (Note 3)		dv/dt	4.5		V/ns
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150		℃
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds		T_L	300		℃

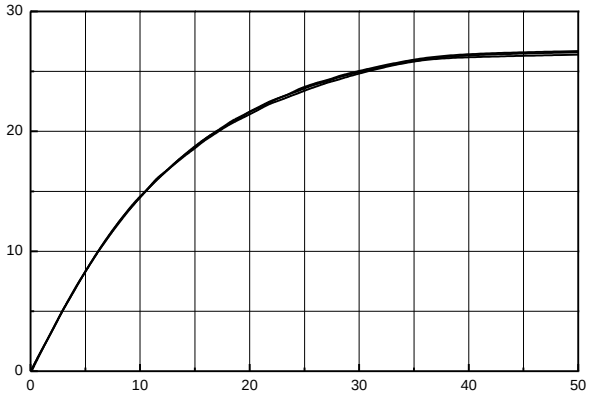
Thermal Characteristics

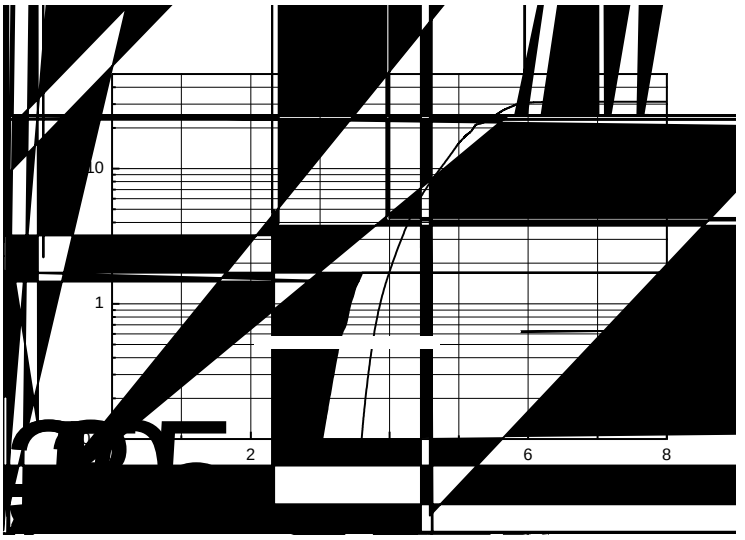
Parameter	Symbol			

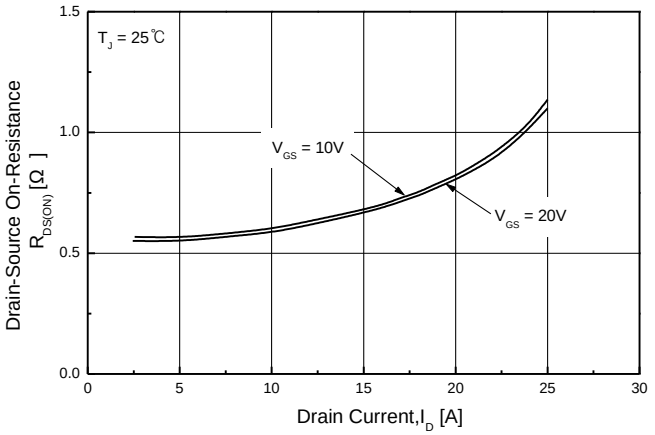
Electrical Characteristics : T_C=25℃, unless otherwise noted

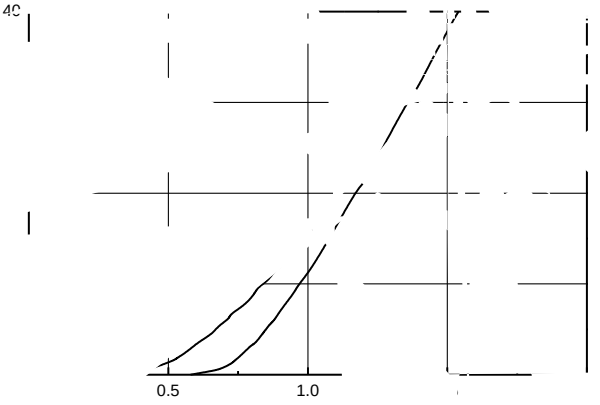
Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250 μA	500	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 500 V, V_{GS} = 0 V	--	--	1	μA
		V_{DS} = 400 V, T_C = 125°C	--	--	10	μA
Forward Gate-Source Leakage Current	I_{GSSF}	V_{GS} = 30 V, V_{DS} = 0 V	--	--	100	nA
Reverse Gate-Source Leakage Current	I_{GSSR}	V_{GS} = -30 V, V_{DS} = 0 V	--	--	-100	nA
ON						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	2	--	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 5.5 A	--	0.54	0.67	
Forward Transconductance (Note 4)	g					

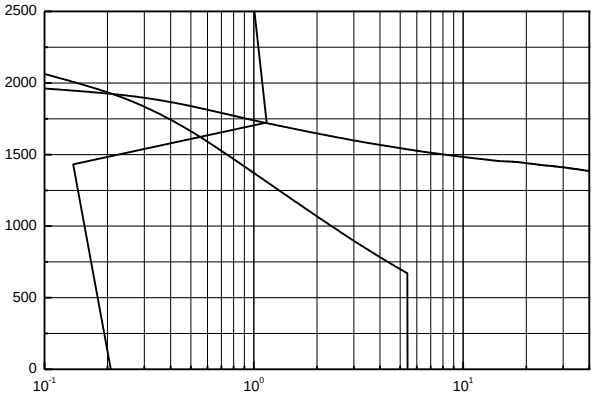
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=8.1mH, I_{AS} = 11A, V_{DD} = 50V, R_G = 25Ω, Starting T_J= 25 ℃
3 I_{SD} ≤ 11A, di/dt ≤ 200A/μs , V_{DD} ≤ BV_{DS}, Starting T_J= 25 ℃
4. Pulse Test :Pulse width ≤ 300μs, Duty Cycle ≤ 2%
5. Essentially Independent of Operating Temperature Typical Characteristics

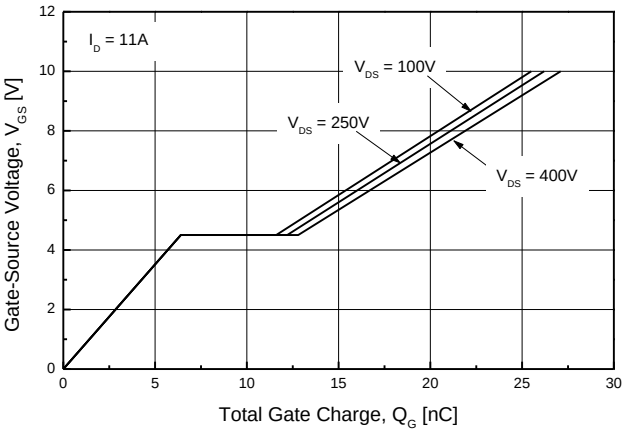

30
20
10
0
0
10
20
30
40
50

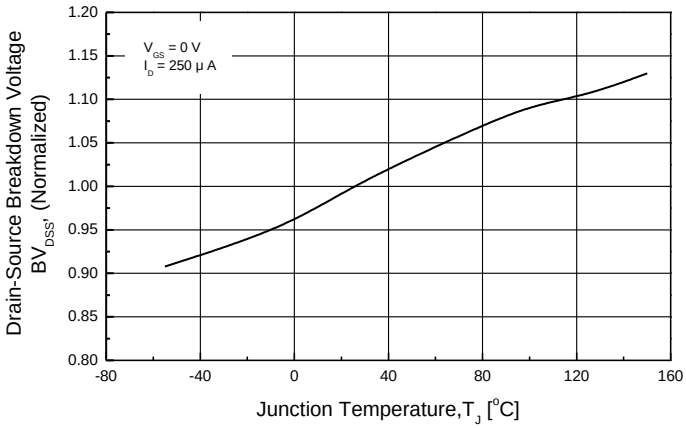

10
1
2
6
8

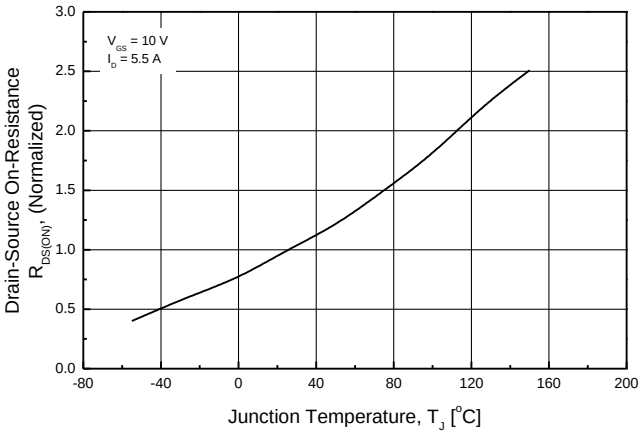

T_J = 25℃
V_GS = 10V
V_GS = 20V
Drain-Source On-Resistance
R_DS(ON) [Ω]
1.5
1.0
0.5
0.0
0
5
10
15
20
25
30
Drain Current,I_D [A]

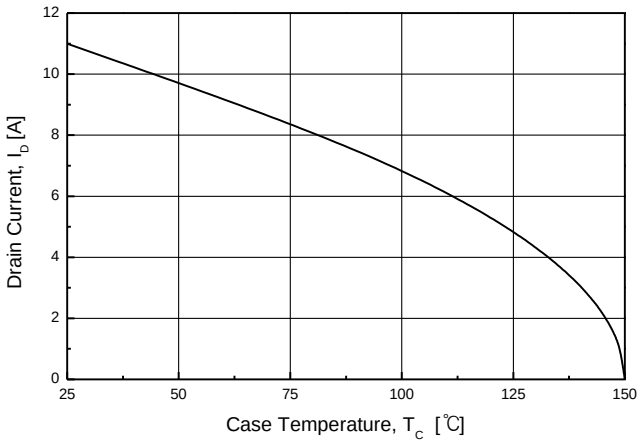

40
0.5
1.0


2500
2000
1500
1000
500
0
10^-1
10^0
10^1

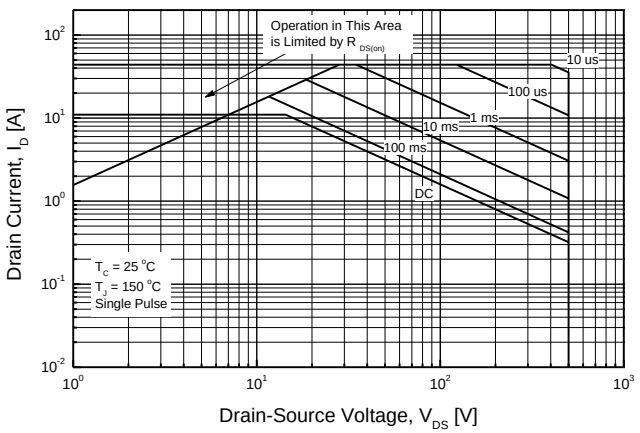

I_D = 11A
V_DS = 100V
V_DS = 250V
V_DS = 400V
Gate-Source Voltage, V_GS [V]
12
10
8
6
4
2
0
0
5
10
15
20
25
30
Total Gate Charge, Q_G [nC]







TMP11N50(G)



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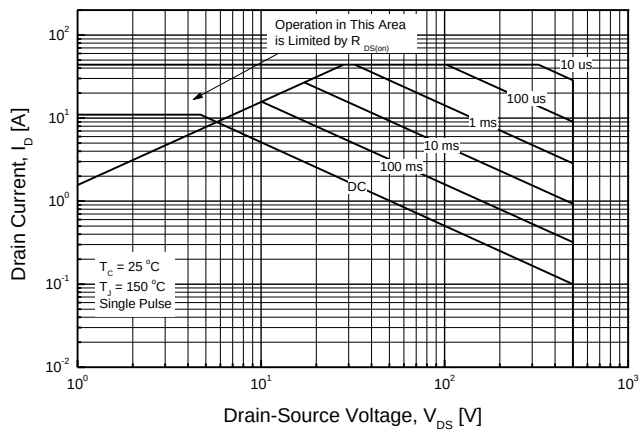

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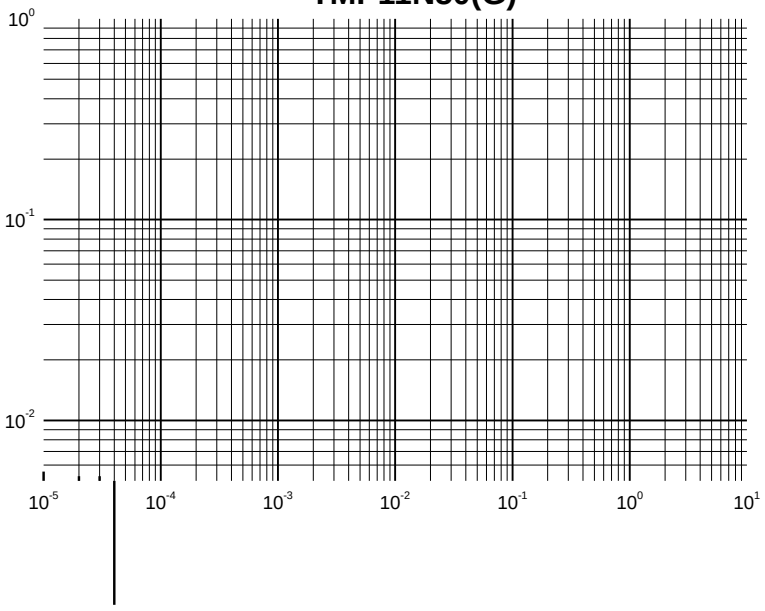

TMPF11N50(G)