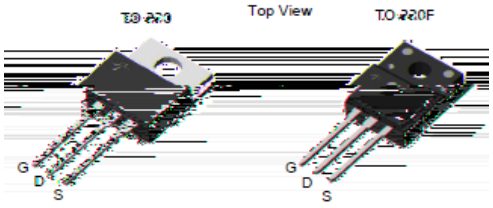
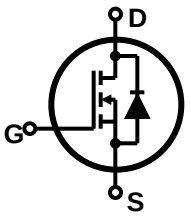
TMP5N50/TMPF5N50
TMP5N50G/TMPF5N50G

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 = 4.5A
$R_{DS(ON)}$ = 1.65 (max) @ V_{GS}= 10 V





Device	Package	Marking	Remark
TMP5N50 / TMPF5N50	TO-220 / TO-220F	TMP5N50 / TMPF5N50	RoHS
TMP5N50G / TMPF5N50G	TO-220 / TO-220F	TMP5N50G / TMPF5N50G	Halogen Free

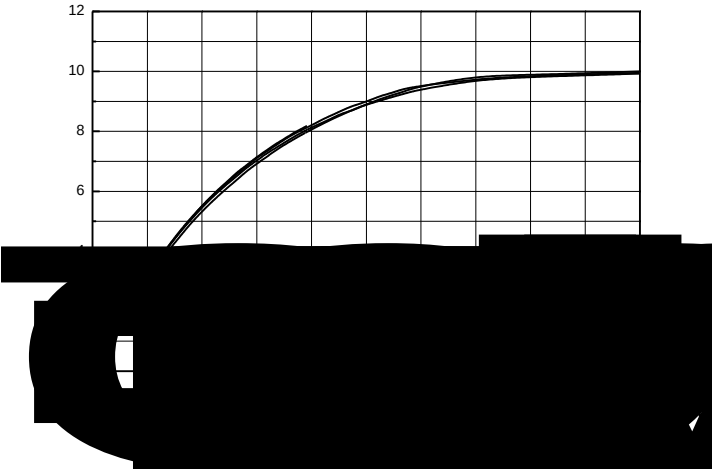
Absolute Maximum Ratings

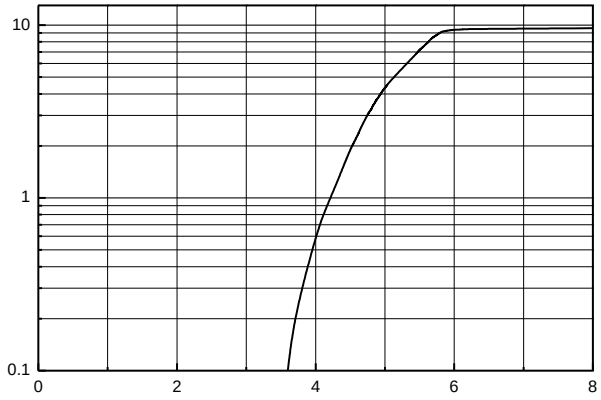
Parameter		Symbol	TMP5N50(G)	TMPF5N50(G)	Unit
Drain-Source Voltage		V_{DSS}	500		V
Gate-Source Voltage		V_{GS}	±30		V
Continuous Drain Current	T_C = 25 ℃	I_D	4.5	4.5 *	A
	T_C = 100 ℃		2.86	2.86 *	A
Pulsed Drain Current (Note 1)		I_{DM}	18	18*	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	240		mJ
Repetitive Avalanche Current (Note 1)		I_{AR}	4.5		A
Repetitive Avalanche Energy (Note 1)		E_{AR}	9.25		mJ
Power Dissipation	T_C = 25 ℃	P_D	92.5	32	W
	Derate above 25 ℃		0.74	0.25	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,		T_L	300		℃

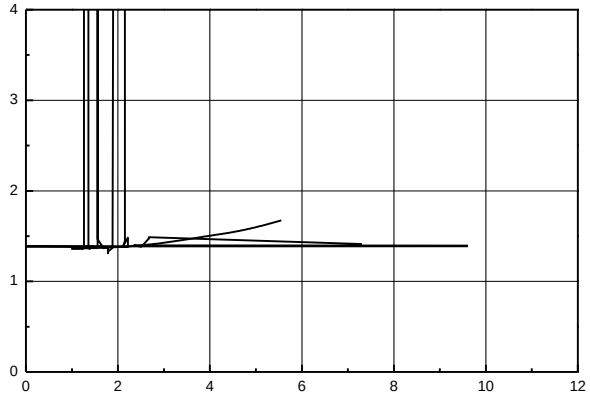
* Limited only by maximum junction temperature

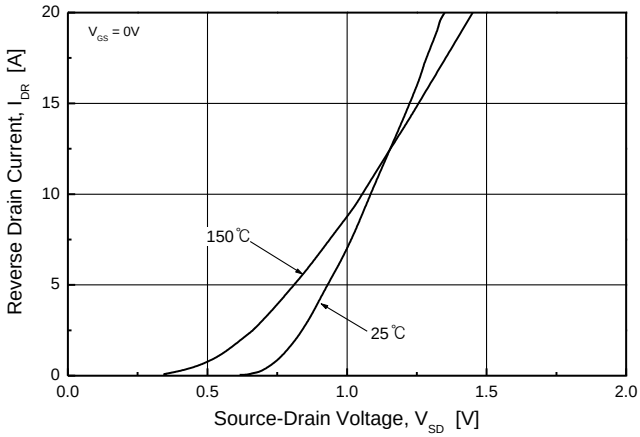
Thermal Characteristics

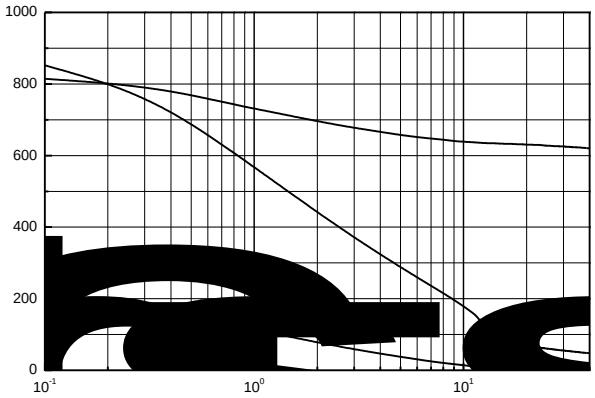
Parameter	Symbol	TMP5N50(G)	TMPF5N50(G)	Unit
Maximum Thermal resistance, Junction-to-Case	R_{JC}	1.35	3.9	℃/W
Maximum Thermal resistance, Junction-to-Ambient	R_{JA}	62.5	62.5	℃/W

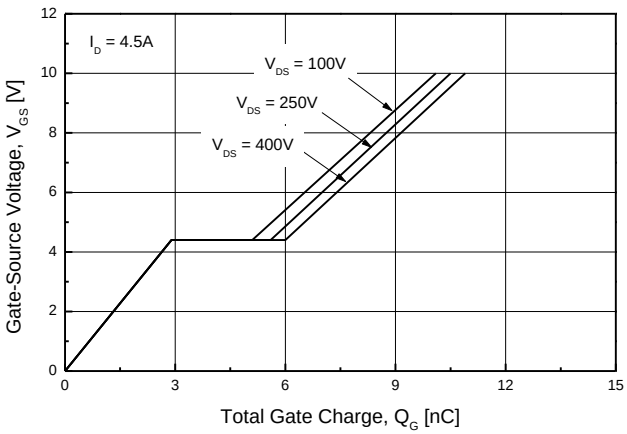

12
10
8
6

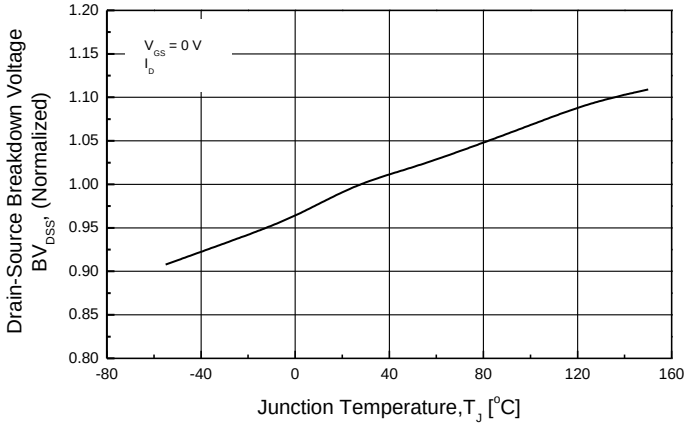

10
1
0.1
0
2
4
6
8

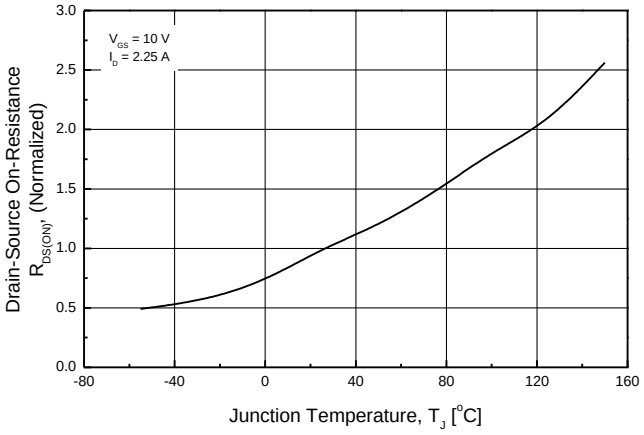

4
3
2
1
0
0
2
4
6
8
10
12

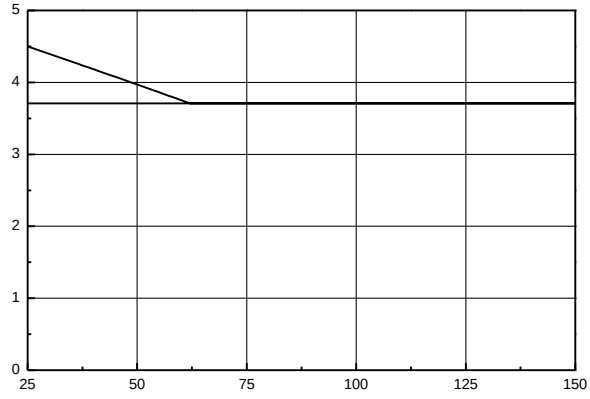

V_{GS} = 0V
Reverse Drain Current, I_{DR} [A]
150℃
25℃
20
15
10
5
0
0.0
0.5
1.0
1.5
2.0
Source-Drain Voltage, V_{SD} [V]


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

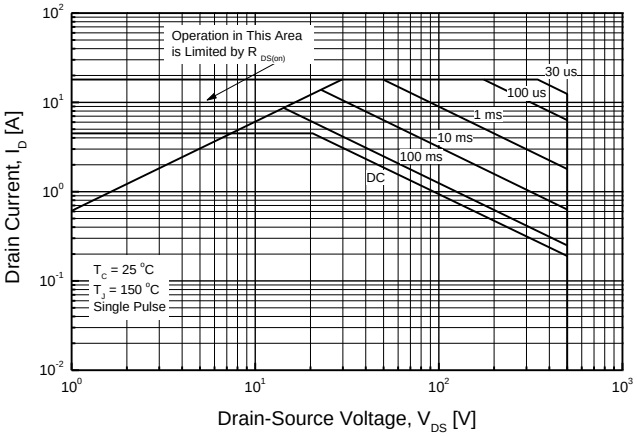

I_D = 4.5A
V_{DS} = 100V
V_{DS} = 250V
V_{DS} = 400V
Gate-Source Voltage, V_{GS} [V]
12
10
8
6
4
2
0
0
3
6
9
12
15
Total Gate Charge, Q_G [nC]



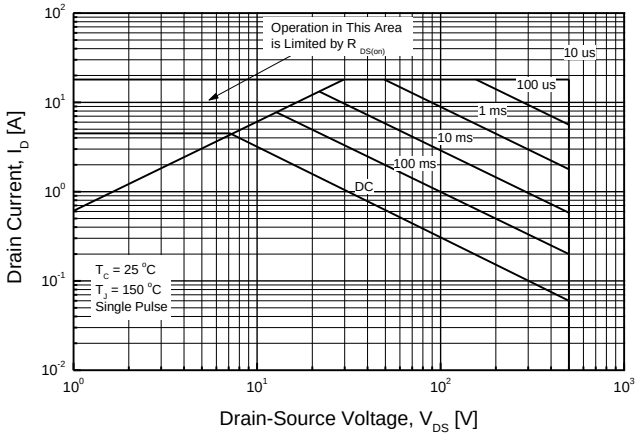




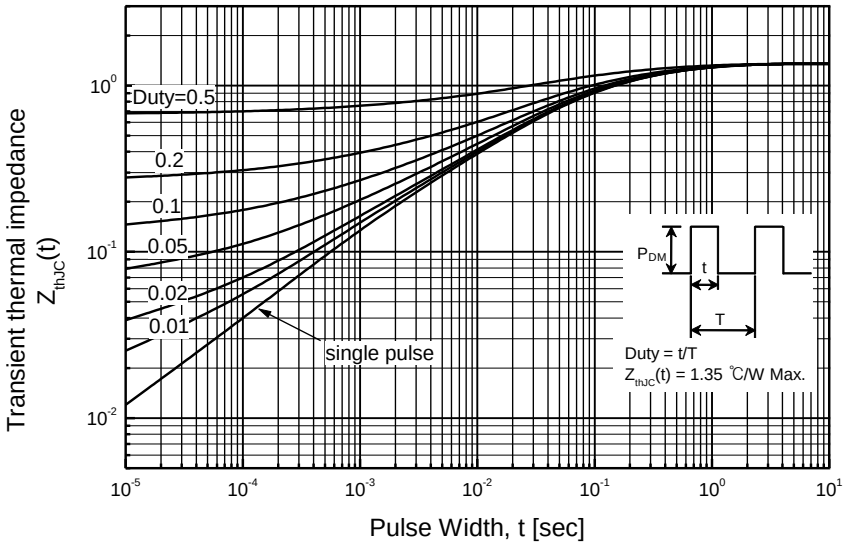
TMP5N50(G)



TMPF5N50(G)



TMP5N50(G)



TMPF5N50(G)