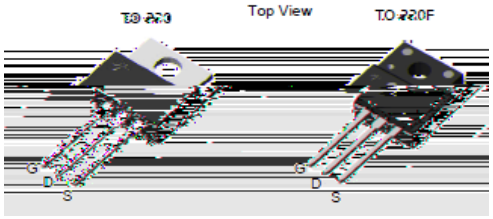
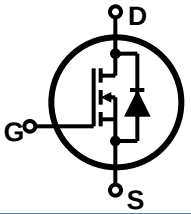
TMP15N50/TMPF15N50
TMP15N50G/TMPF15N50G

V_{DSS} = 550 V @T_{jmax}
I_D = 14A
$R_{DS(on)}$ = 0.44 (max) @ V_{GS}= 10 V

Features

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





Device	Package	Marking	Remark
TMP15N50 / TMPF15N50	TO-220 / TO-220F	TMP15N50 / TMPF15N50	RoHS
TMP15N50G / TMPF15N50G	TO-220 / TO-220F	TMP15N50G / TMPF15N50G	Halogen Free

Absolute Maximum Ratings

Parameter		Symbol	TMP15N50(G)	TMPF15N50(G)	Unit
Drain-Source Voltage		V_{DS}	500		V
Gate-Source Voltage		V_{GS}	±30		V
Continuous Drain Current	T_C = 25 ℃	I_D	14	14*	A
	T_C = 100 ℃		9.3	9.3*	A
Pulsed Drain Current (Note 1)		I_{DM}	56	56*	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	630		mJ
Repetitive Avalanche Current (Note 1)		I_{AR}	14		A
Repetitive Avalanche Energy (Note 1)		E_{AR}	23.1		mJ
Power Dissipation	T_C = 25 ℃	P_D	231	53	W
	Derate above 25 ℃		1.85	0.42	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		℃

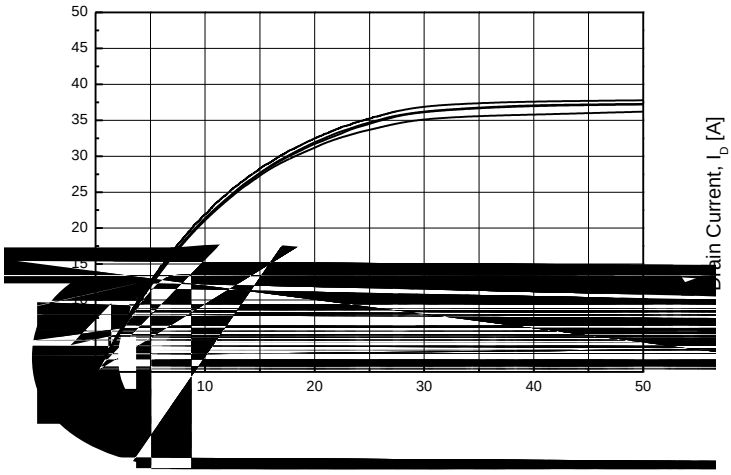
* Limited only by maximum junction temperature

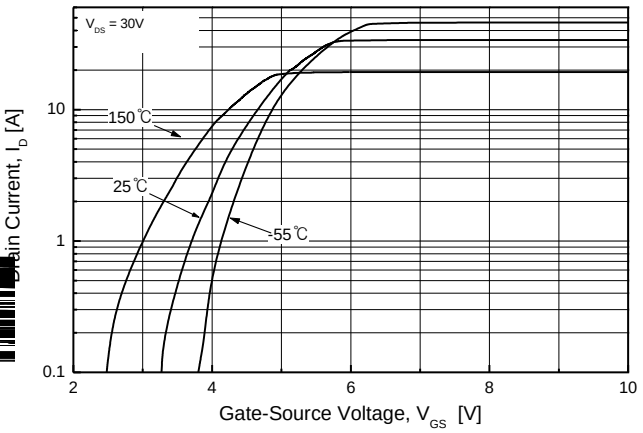
Thermal Characteristics

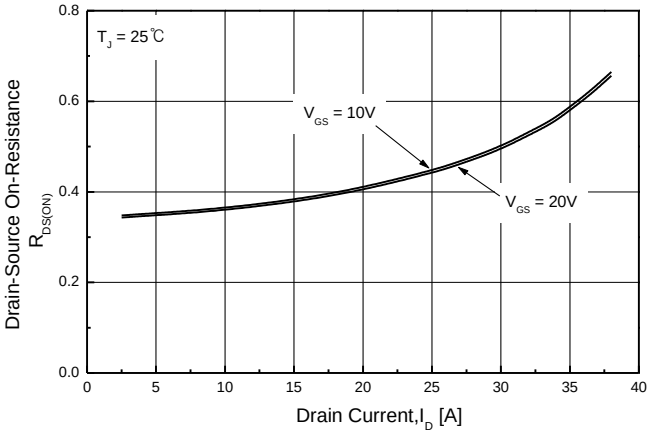
Parameter	Symbol	TMP15N50(G)	TMPF15N50(G)	Unit
Maximum Thermal resistance, Junction-to-Case	R_{JC}	0.54	2.34	℃/W
Maximum Thermal resistance, Junction-to-Ambient	R_{JA}	62.5	62.5	℃/W

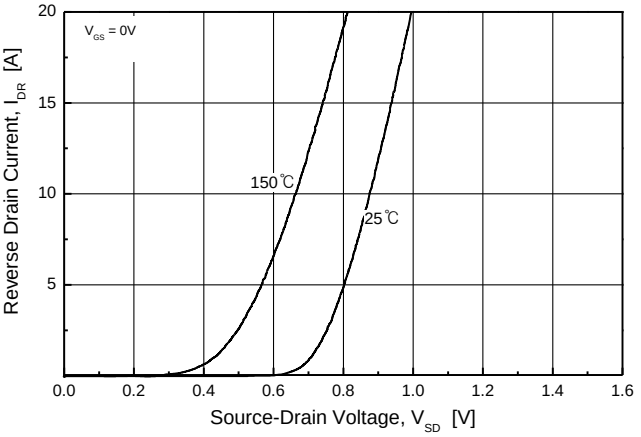
Electrical Characteristics : T_C=25℃, unless otherwise noted

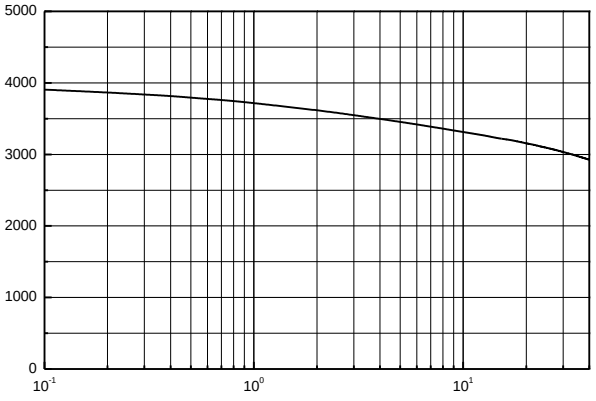
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=5.9mH, I_{AS} = 14A, V_{DD} = 50V, R_G = 25 , Starting T_J= 25 ℃
3 I_{SD} μs , V_{DD} $_{DS}$, Starting T_J= 25 ℃
μ
5. Essentially Independent of Operating Temperature Typical Characteristics

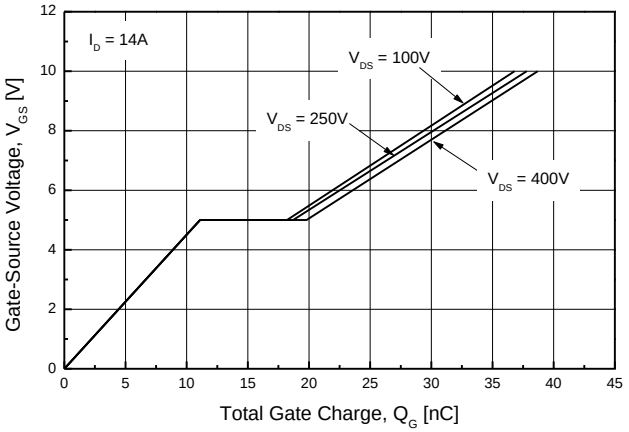

50
45
40
35
30
25
20
15
10
20
30
40
50

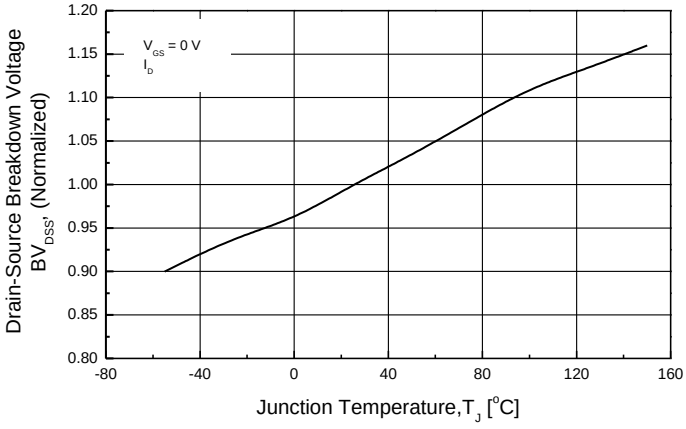

V_{DS} = 30V
150℃
25℃
55℃
10
1
0.1
2
4
6
8
10
Drain Current, I_D [A]
Gate-Source Voltage, V_{GS} [V]

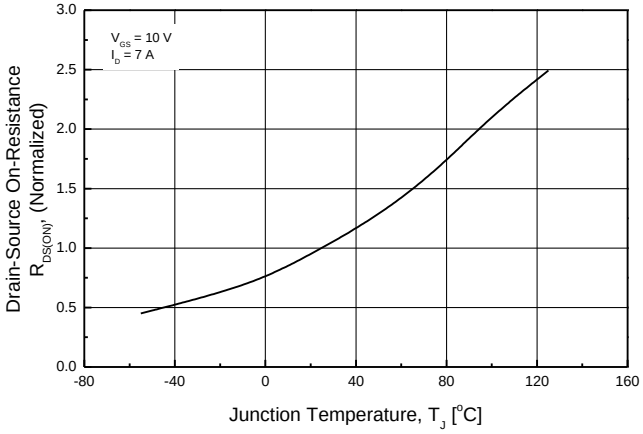

T_J = 25℃
V_{GS} = 10V
V_{GS} = 20V
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30
35
40
Drain-Source On-Resistance
$R_{DS(ON)}$
Drain Current,I_D [A]

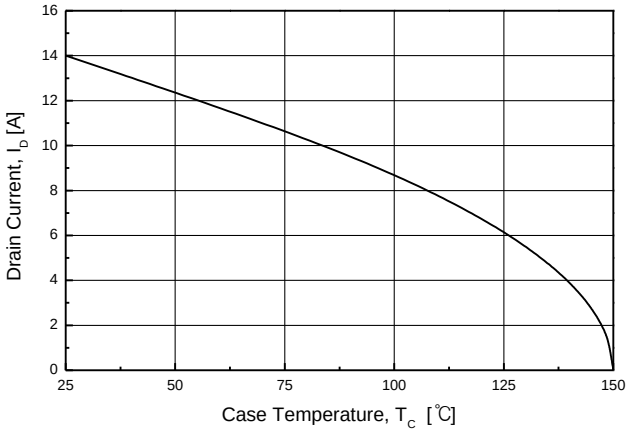

V_{GS} = 0V
150℃
25℃
20
15
10
5
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
Reverse Drain Current, I_{DR} [A]
Source-Drain Voltage, V_{SD} [V]


5000
4000
3000
2000
1000
0
10^{-1}
10^{0}
10^{1}

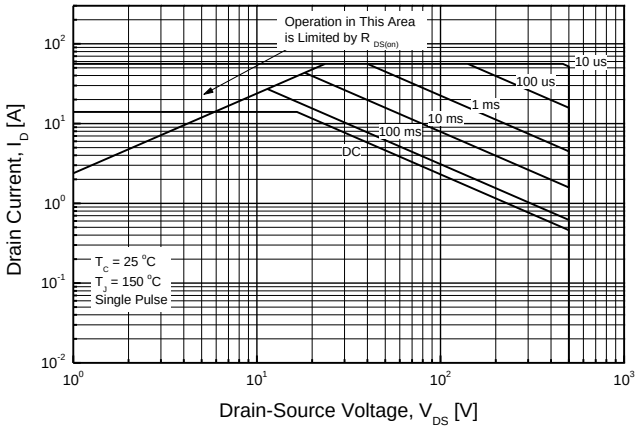

I_D = 14A
V_{DS} = 100V
V_{DS} = 250V
V_{DS} = 400V
12
10
8
6
4
2
0
0
5
10
15
20
25
30
35
40
45
Gate-Source Voltage, V_{GS} [V]
Total Gate Charge, Q_G [nC]



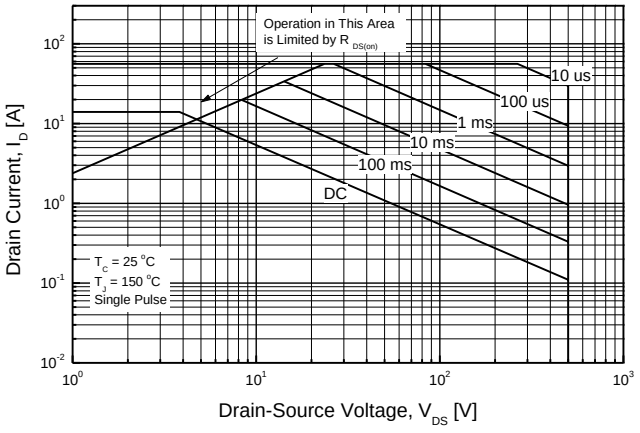




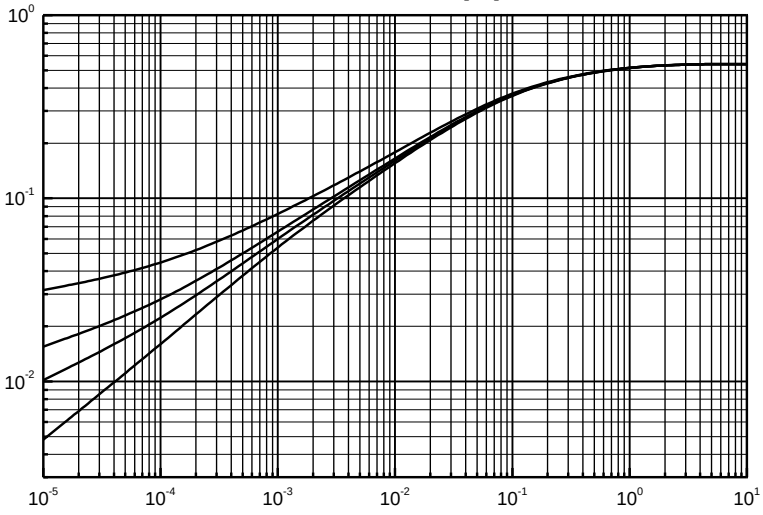
TMP15N50(G)



TMPF15N50(G)



TMP15N50(G)



TMPF15N50(G)