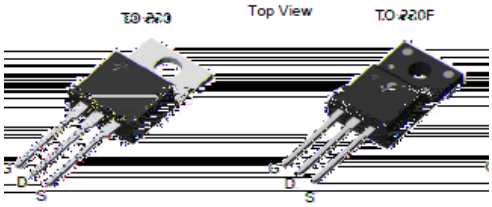
TMP12N60A(G)/TMPF12N60A(G)

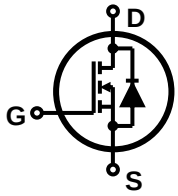
N-channel MOSFET

BV_{DSS}	I_D	$R_{DS(on)}$
600V	12A	< 0.65Ω

Features

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





Device	Package	Marking	Remark
TMP12N60A / TMPF12N60A	TO-220 / TO-220F	TMP12N60A / TMPF12N60A	RoHS
TMP12N60AG / TMPF12N60AG	TO-220 / TO-220F	TMP12N60AG / TMPF12N60AG	Halogen Free

Absolute Maximum Ratings

Parameter		Symbol	TMP12N60A(G)	TMPF12N60A(G)	Unit
Drain-Source Voltage		V_{DSS}	600		V
Gate-Source Voltage		V_{GS}	30		V
Continuous Drain Current	T_C = 25	I_D	12	12 *	A
	T_C = 100		7.2	7.2 *	A
Pulsed Drain Current (Note 1)		I_{DM}	48	48 *	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	825		mJ
Repetitive Avalanche Current (Note 1)		I_{AR}	12		A
Repetitive Avalanche Energy (Note 1)		E_{AR}	23.1		mJ
Power Dissipation	T_C = 25	P_D	231	53.4	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		

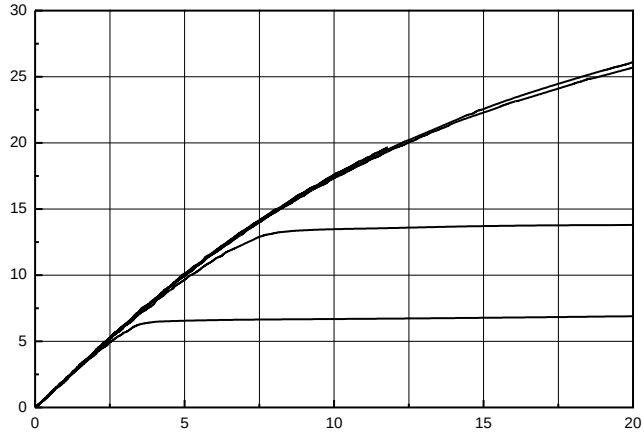
* Limited only by maximum junction temperature

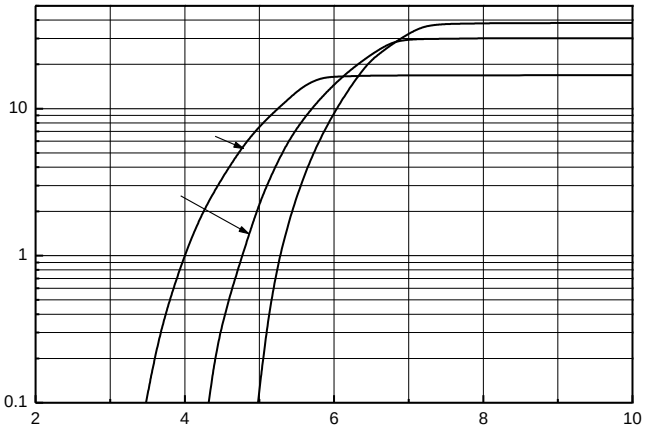
Thermal Characteristics

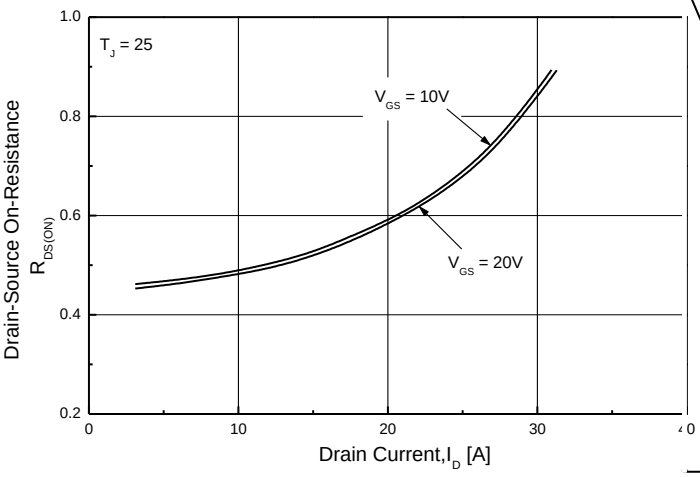
Parameter	Symbol	TMP12N60A(G)	TMPF12N60A(G)	Unit
Maximum Thermal resistance, Junction-to-Case	$R_{\theta JC}$	0.54	2.34	/W
Maximum Thermal resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	62.5	/W

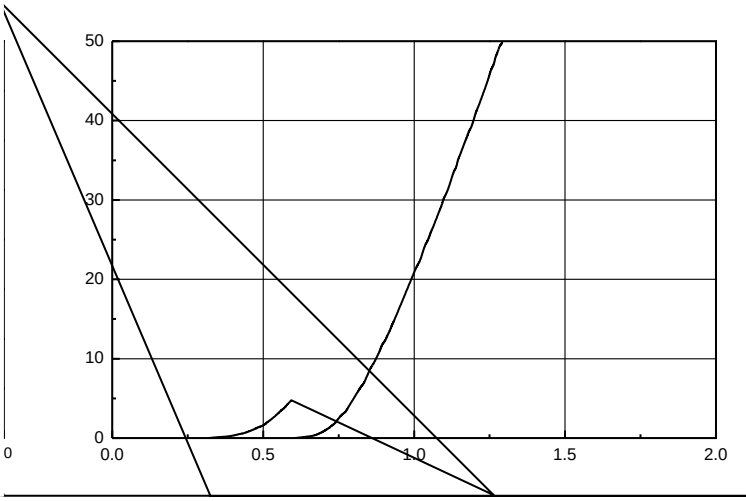
Electrical Characteristics : T_C=25 , unless otherwise noted

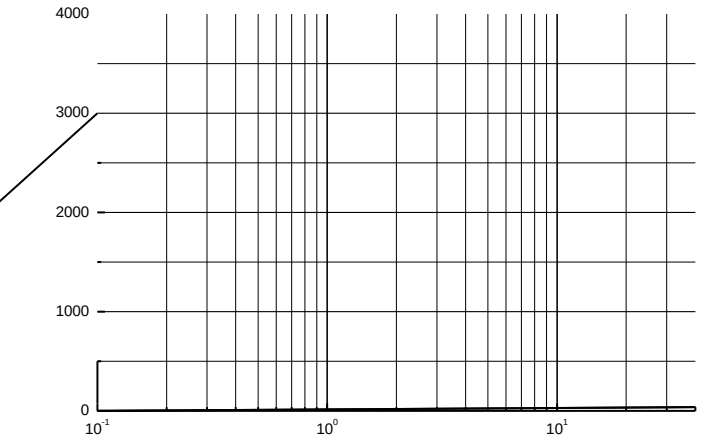
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=10.5mH, I_{AS} = 12A, V_{DD} = 50V, R_G = 25 , Starting T_J= 25

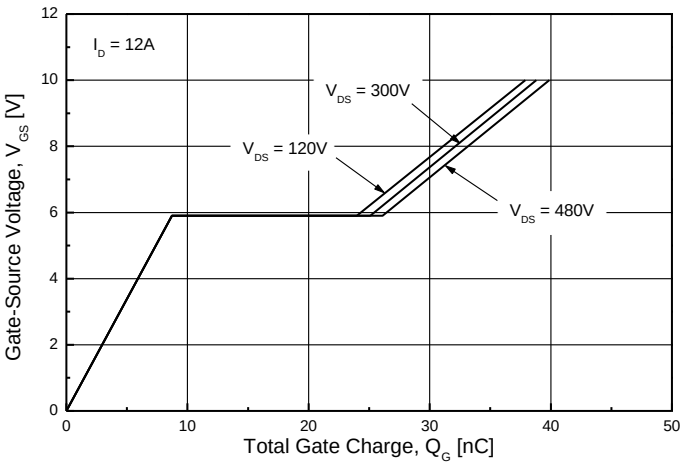

30
25
20
15
10
5
0
0
5
10
15
20

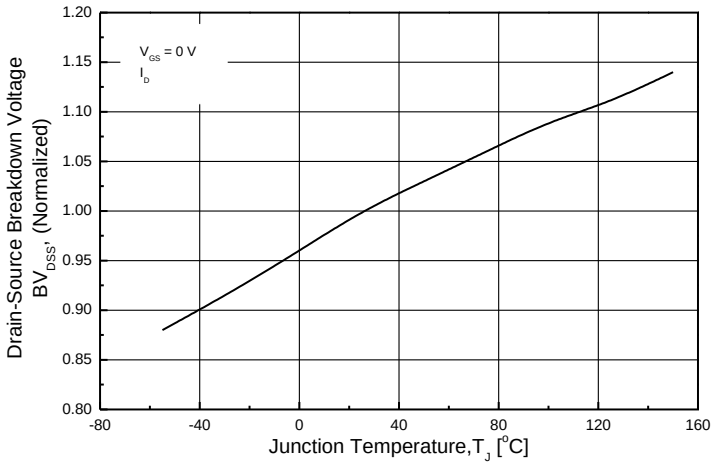

10
1
0.1
2
4
6
8
10

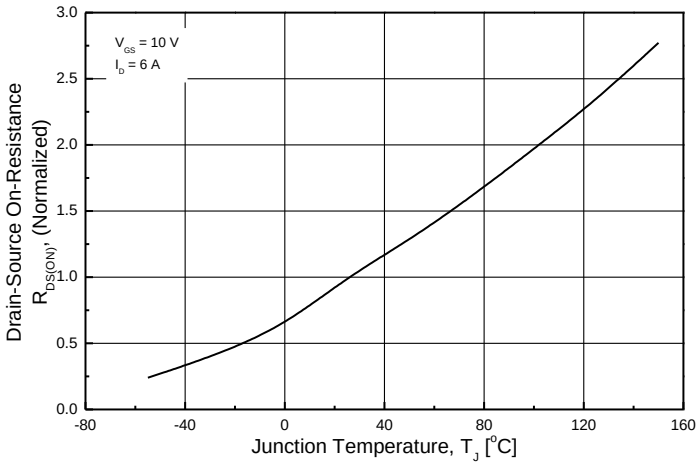

T_J = 25
V_GS = 10V
V_GS = 20V
Drain-Source On-Resistance
R_DS(ON)
1.0
0.8
0.6
0.4
0.2
0
10
20
30
Drain Current,I_D [A]

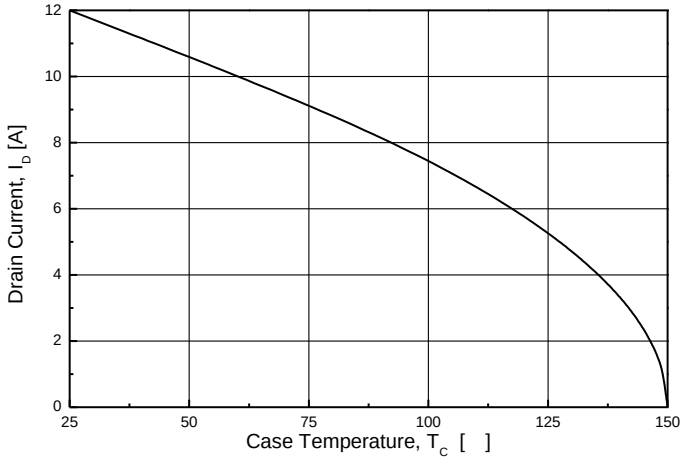

50
40
30
20
10
0
0.0
0.5
1.0
1.5
2.0

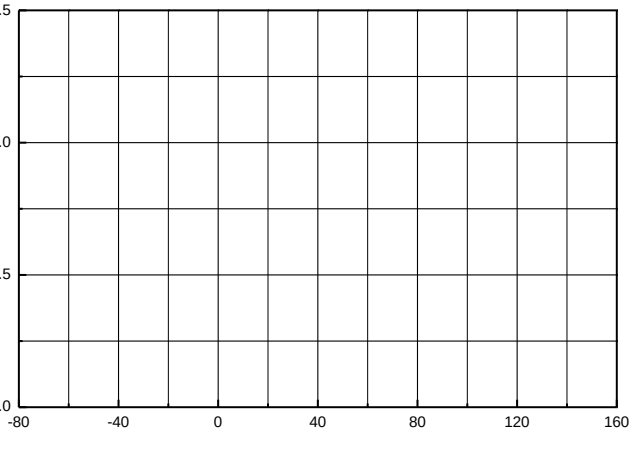

4000
3000
2000
1000
0
10^-1
10^0
10^1


I_D = 12A
V_DS = 300V
V_DS = 120V
V_DS = 480V
Gate-Source Voltage, V_GS [V]
12
10
8
6
4
2
0
0
10
20
30
40
50
Total Gate Charge, Q_G [nC]

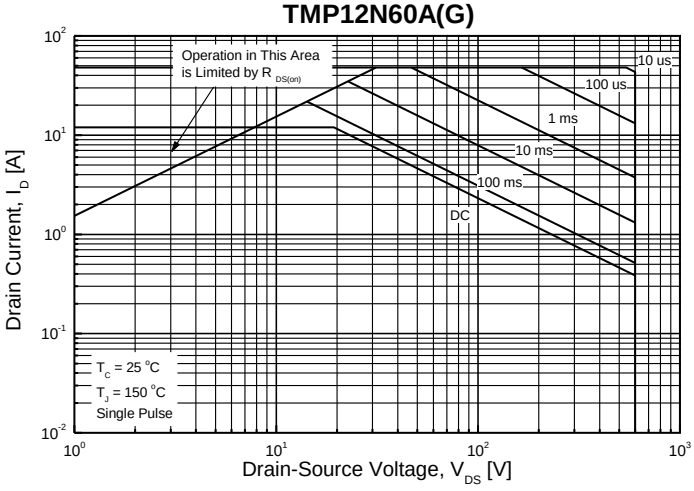




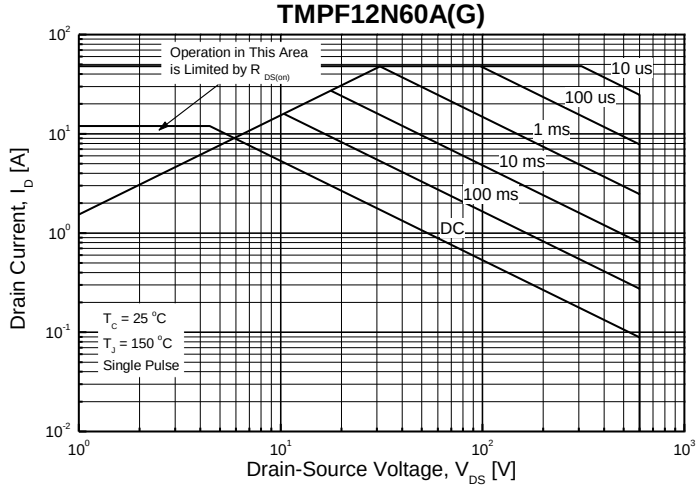




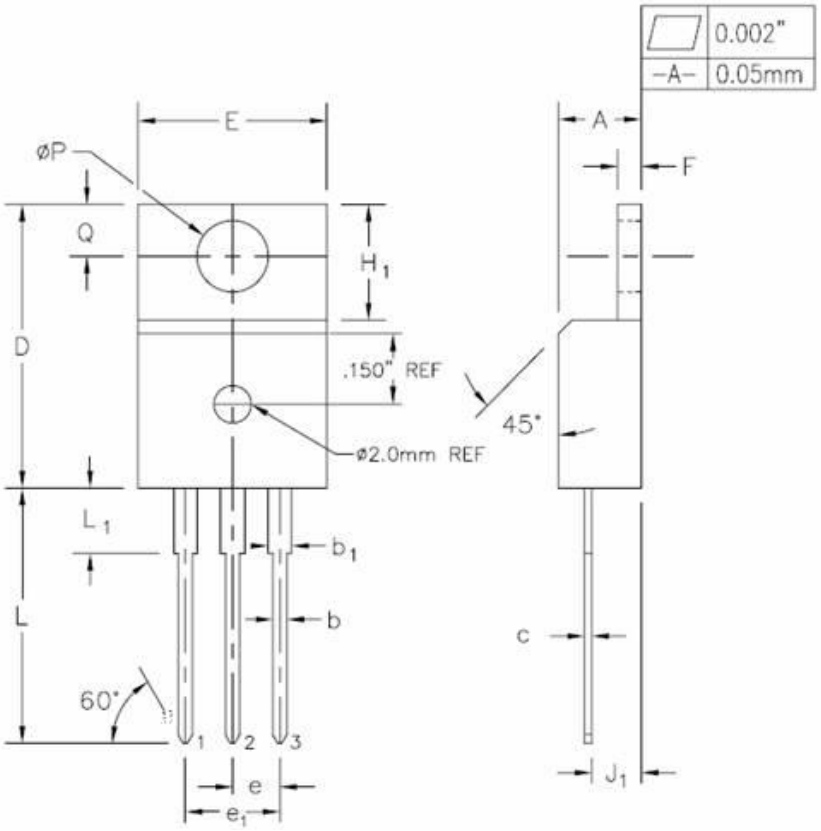
TMP12N60A(G)



TMPF12N60A(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	[illegible]		[illegible]		
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	0.148	0.153	3.79	3.88	
Q	0.102	0.112	2.60	2.84	

TO-220F-3L MECHANICAL DATA