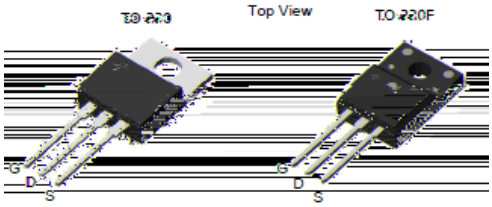
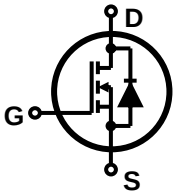
N-channel MOSFET

BV_{DSS}	I_D	$R_{DS(on)}$
900V	4A	<4.0Ω

Features

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





Device	Package	Marking	Remark
TMP4N90 / TMPF4N90	TO-220 / TO-220F	TMP4N90 / TMPF4N90	RoHS
TMP4N90G / TMPF4N90G	TO-220 / TO-220F	TMP4N90G / TMPF4N90G	Halogen Free

Absolute Maximum Ratings

Parameter		Symbol	TMP4N90(G)	TMPF4N90(G)	Unit
Drain-Source Voltage		V_{DSS}	900		V
Gate-Source Voltage		V_{GS}	30		V
Continuous Drain Current	T_C = 25	I_D	14	4 *	A
	T_C = 100		2.22	2.22 *	A
Pulsed Drain Current (Note 1)		I_{DM}	16	16 *	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	8.5		mJ
Repetitive Avalanche Current (Note 1)		I_{AR}	4		A
Repetitive Avalanche Energy (Note 1)		E_{AR}	12.3		mJ
Power Dissipation	T_C = 25	P_D	123	38.7	W
	Derate above 25		0.98	0.30	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	TMP4N90(G)	TMPF4N90(G)	Unit
Maximum Thermal resistance, Junction-to-Case	$R_{\theta JC}$	1.01	3.23	/W
Maximum Thermal resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	62.5	/W

Fig. 1 Output Characteristics

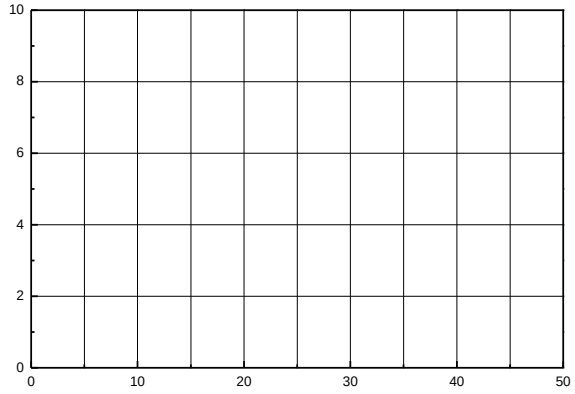


Fig. 2 Transfer Characteristics

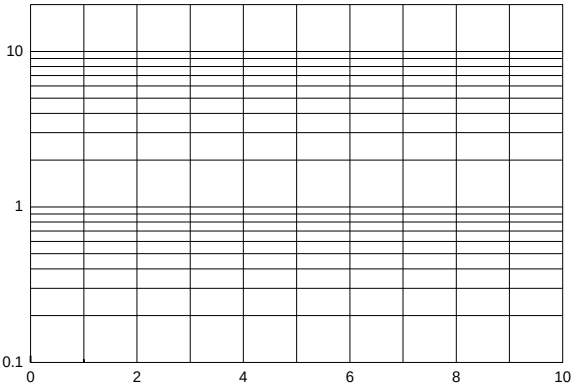


Fig. 3 On-Resistance vs.
Drain Current and Gate voltage

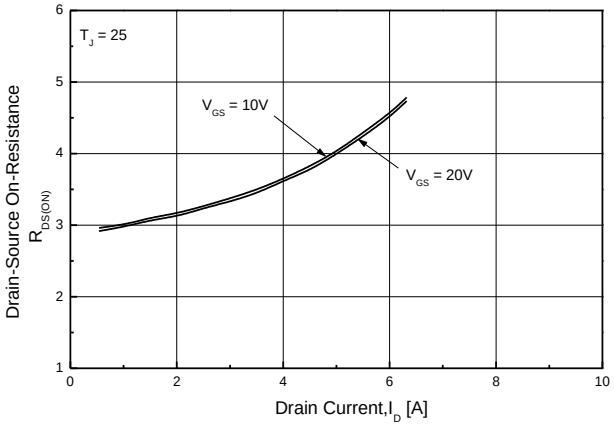


Fig. 4 Body Diode Forward Voltage vs.
Source Current and Temperature

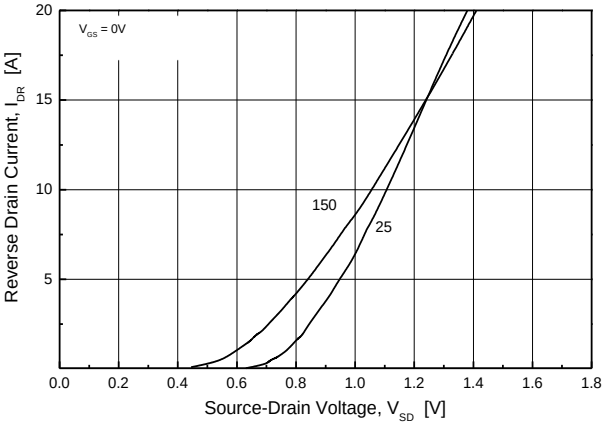


Fig. 5 Capacitance Characteristics

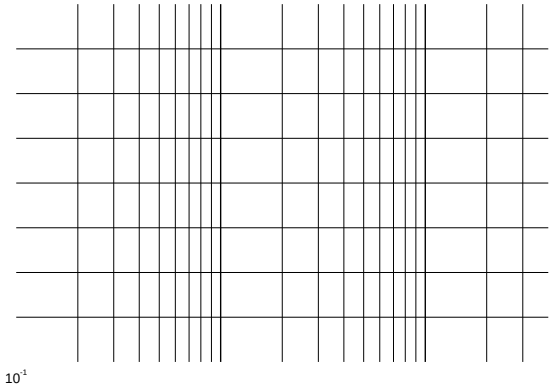


Fig. 6 Gate Charge Characteristics

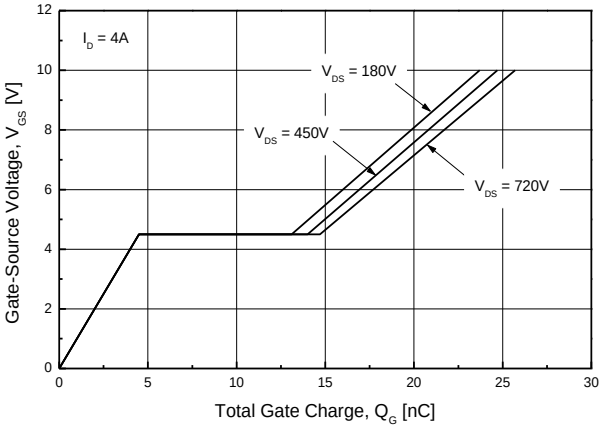


Fig. 7 Breakdown Voltage vs. Temperature

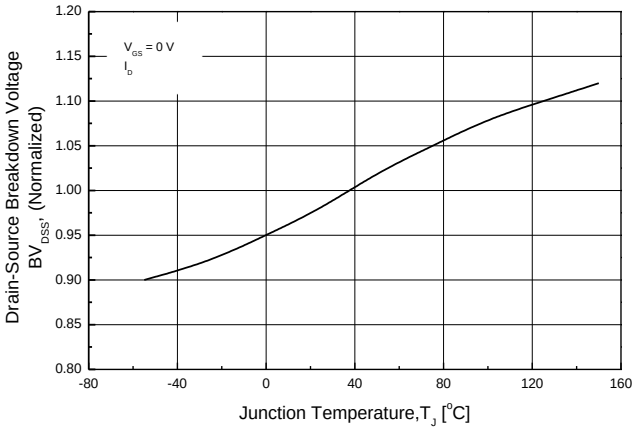


Fig. 8 On-Resistance vs. Temperature

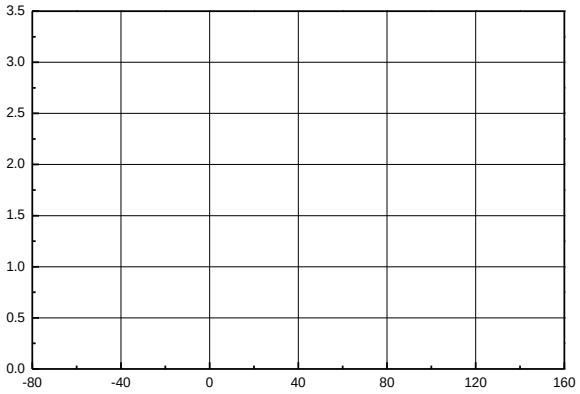


Fig. 9 Maximum Drain Current vs. Case Temperature

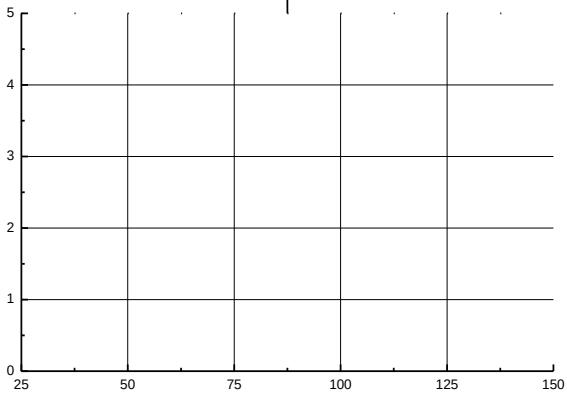


Fig. 10 Gate Threshold Voltage vs. Junction Temperature

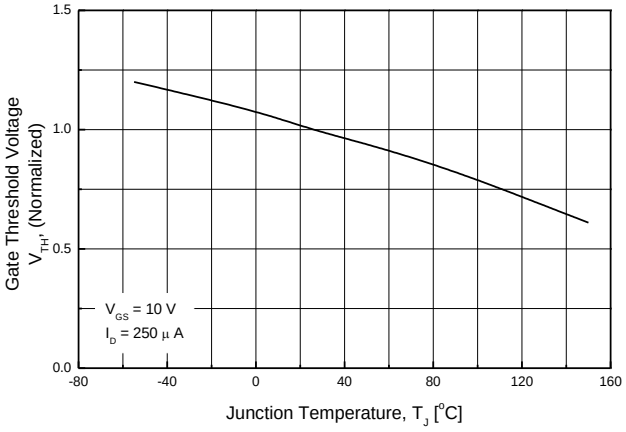
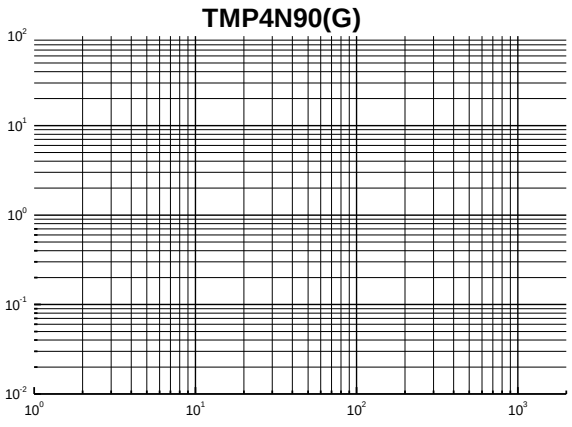


Fig. 11 Maximum Safe Operating Area



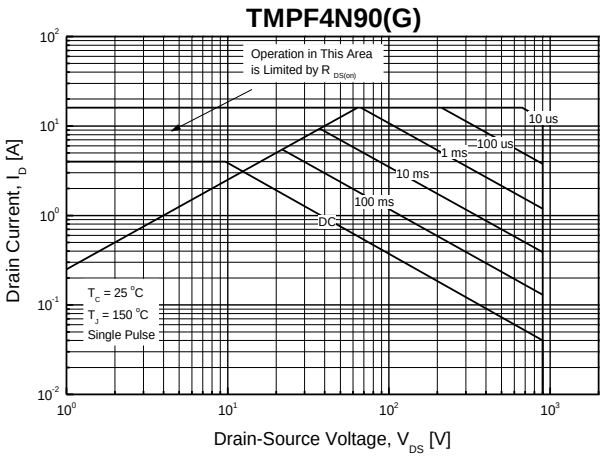
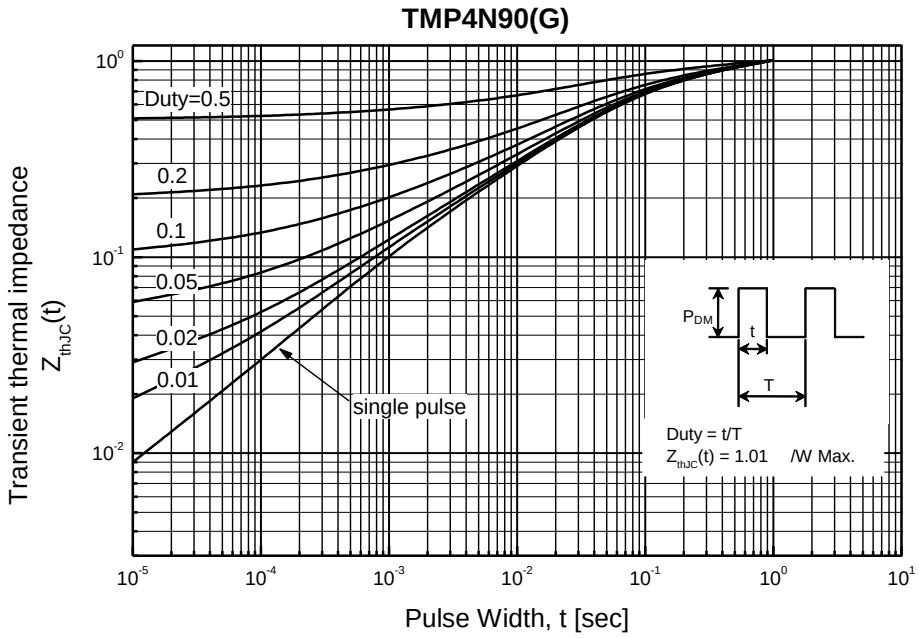
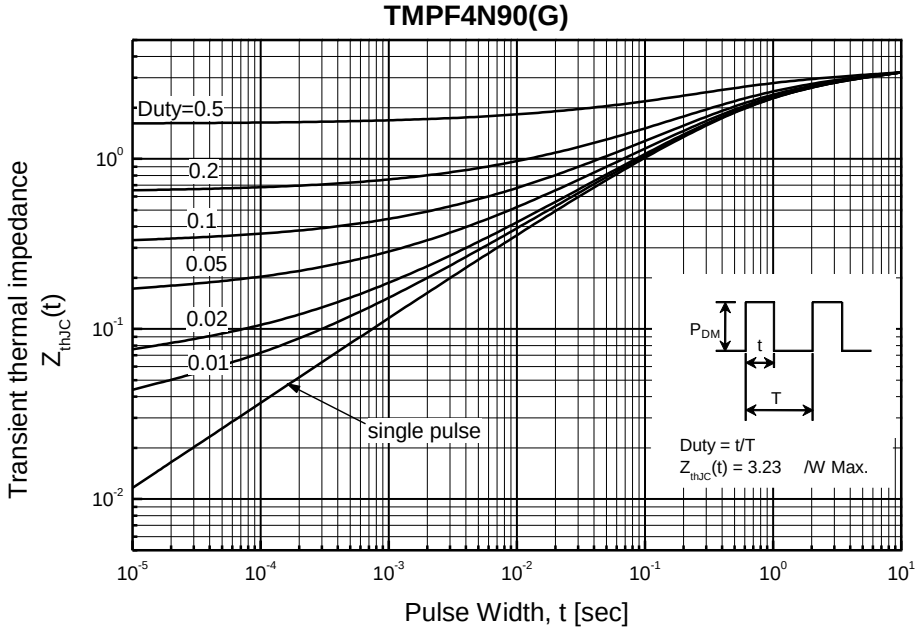
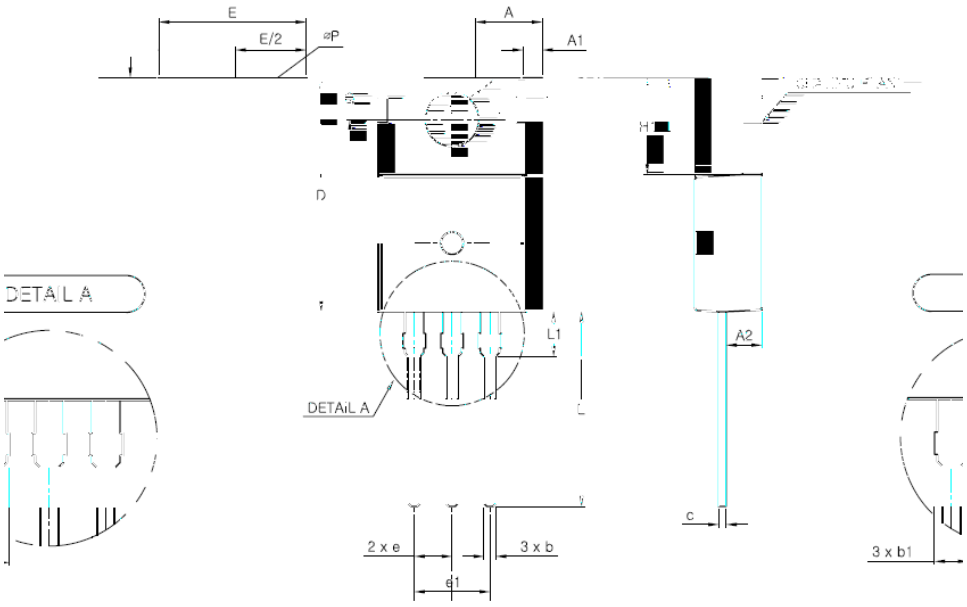


Fig. 12 Transient Thermal Response Curve



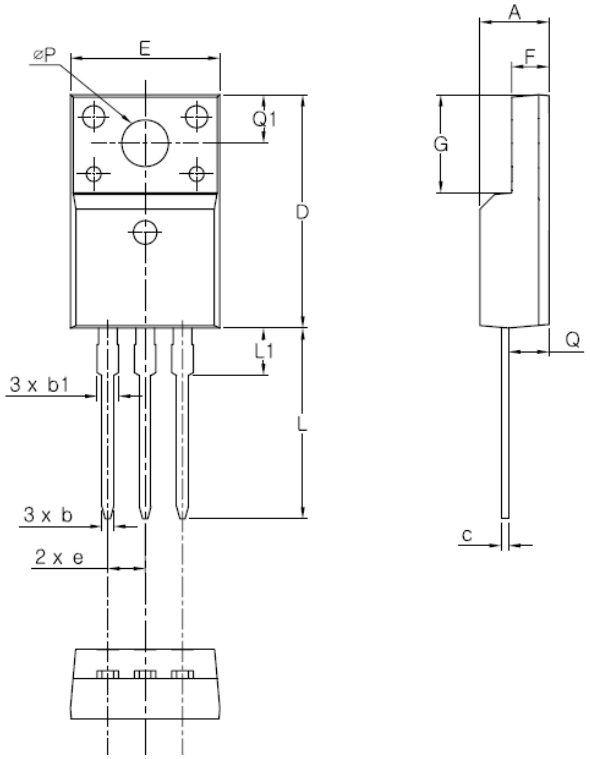


TO-220AB-3L MECHANICAL DATA



SYMBOL	MIN	MAX
A	4.30	4.70
A1	1.22	1.40
A2	2.20	2.79
b	0.70	0.91
b1	1.15	1.62
c	0.36	0.60
D	14.99	15.90
E	9.70	10.41
e	2.54 TYP	
e1	5.08 BSC	
H1	5.97	6.70
L	12.88	13.97
L1	3.31	3.81
ØP	3.40	3.88
Q	2.60	2.90

TO-220F-3L MECHANICAL DATA



SYMBOL	MIN	MAX
A	4.50	4.93
b	0.70	0.91
b1	1.15	1.47
c	0.36	0.60
D	15.67	16.07
E	6.96	10.36
e	2.54 BSC	
F	2.34	2.74
G	6.48	6.90
L	12.37	13.18
L1	2.23	3.43
Q	2.56	2.96
Q1	3.10	3.50
ØP	2.98	3.38