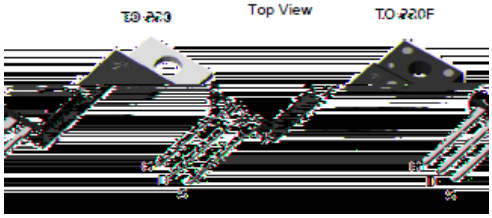
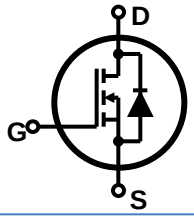
Features

- 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 = 4A
$R_{DS(ON)}$ = 1.85 (max) @ V_{GS}= 10 V





Device	Package	Marking	Remark
TMP5N50SG / TMPF5N50SG	TO-220 / TO-220F	TMP5N50SG / TMPF5N50SG	Halogen Free

Absolute Maximum Ratings

Parameter		Symbol	TMP5N50SG	TMPF5N50SG	Unit
Drain-Source Voltage		V_{DSS}	500		V
Gate-Source Voltage		V_{GS}	±30		V
Continuous Drain Current	T_C = 25 ℃	I_D	4	4 *	A
	T_C = 100 ℃		2.8	2.8 *	A
Pulsed Drain Current (Note 1)		I_{DM}	16	16*	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	240		mJ
Repetitive Avalanche Current (Note 1)		I_{AR}	4		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	TMP5N50SG	TMPF5N50SG	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

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	1.5	--	3.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 2 A	--	1.5	1.85	
Forward Transconductance (Note 4)	g_{FS}	V_{DS} = 30 V, I_D = 2 A	--	8	--	S
DYNAMIC						
InpuCateCID 81/L--						

Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=27mH, I_{AS} = 4A, 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

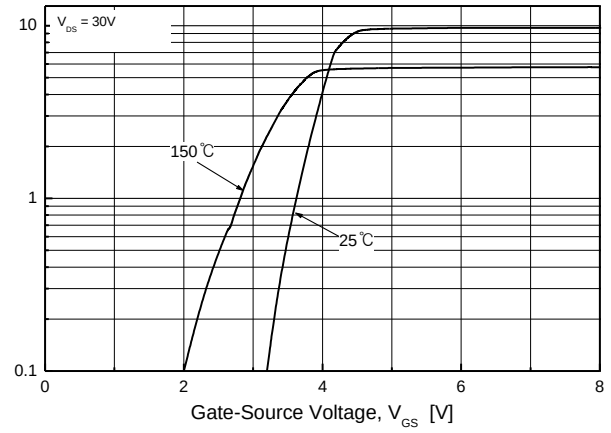
Ele16 TJ 4T Tf 1 0iMC9(s28/Lang (en-US)>> BDC BT /F289 Tf 1 0 0 1 253.66 563.02 Tm [(V)] TJ ET BT)5(a)-3(te)- 0 1 259.66 449.4 Tm -0.012 Tc[(DS)] TJ 14 EMC /F1 9 Tf 1 0 0 1 270.46 450

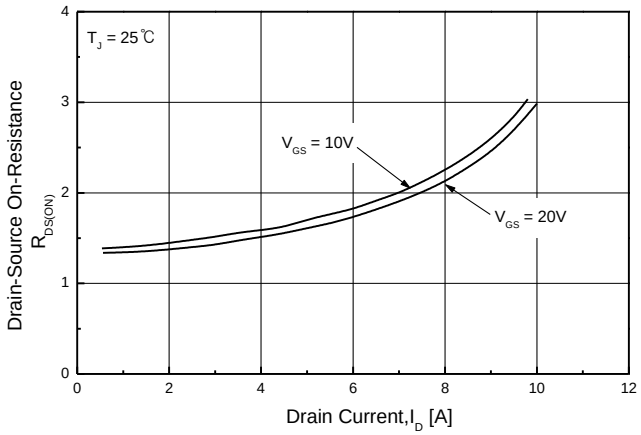
c

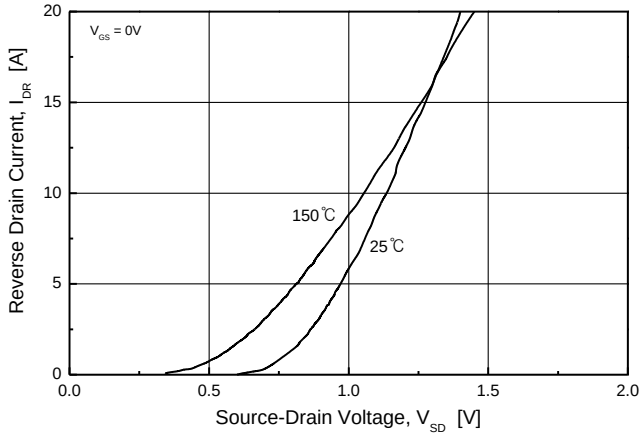
50

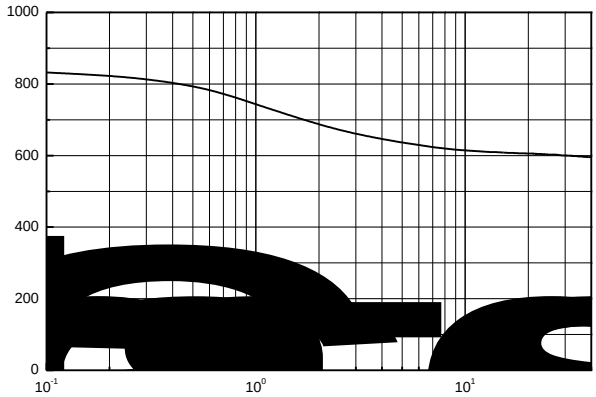
DS

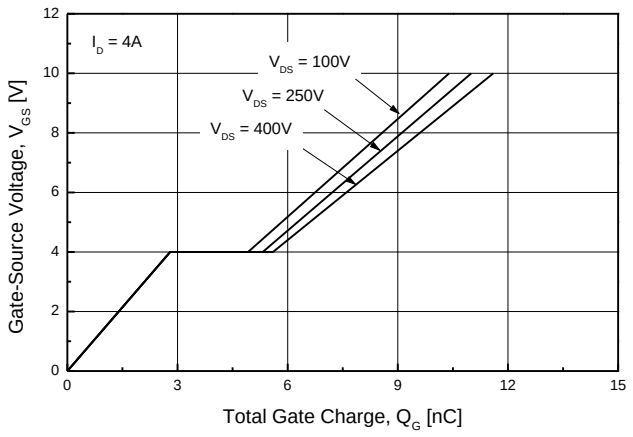
D


V_{DS} = 30V
150℃
25℃
Drain Current, I_D [A]
Gate-Source Voltage, V_{GS} [V]


T_J = 25℃
V_{GS} = 10V
V_{GS} = 20V
Drain-Source On-Resistance $R_{DS(ON)}$
Drain Current, I_D [A]

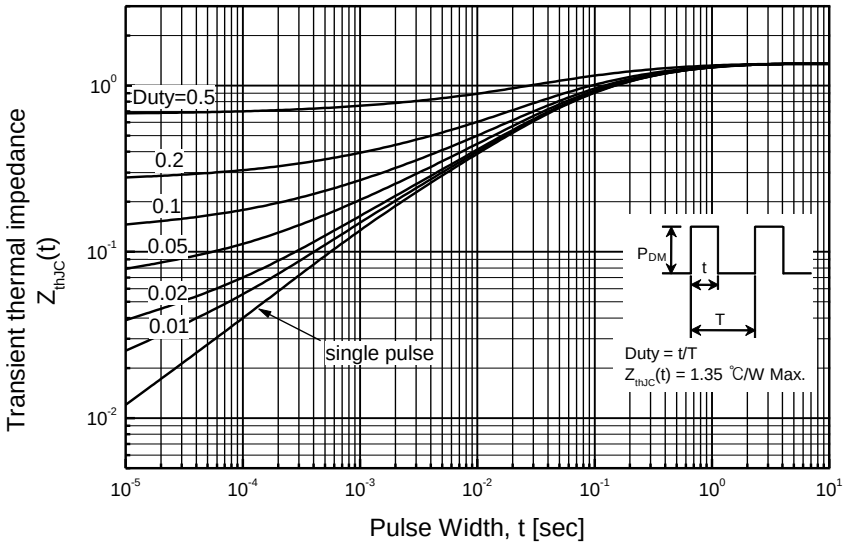

V_{GS} = 0V
150℃
25℃
Reverse Drain Current, I_{DR} [A]
Source-Drain Voltage, V_{SD} [V]




I_D = 4A
V_{DS} = 100V
V_{DS} = 250V
V_{DS} = 400V
Gate-Source Voltage, V_{GS} [V]
Total Gate Charge, Q_G [nC]

TMP5N50SG

TMP5N50SG



TMPF5N50SG