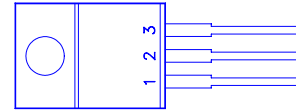
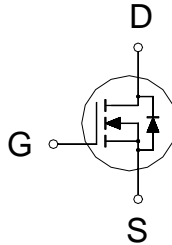


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
25	20m	45A



1. GATE
2. DRAIN
3. SOURCE

ABSOLUTE MAXIMUM RATINGS ($T_C = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	I_D	45	A
	$T_C = 100\text{ }^\circ\text{C}$		28	
Pulsed Drain Current ¹		I_{DM}	140	
Avalanche Current		I_{AR}	20	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	140	mJ
Repetitive Avalanche Energy ²	$L = 0.05\text{mH}$	E_{AR}	5.6	
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	65	W
	$T_C = 100\text{ }^\circ\text{C}$		33	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^\circ\text{C}$
Lead Temperature (¹ / ₁₆ " from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		3	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		70	
Case-to-Heatsink	$R_{\theta CS}$	0.7		

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	25			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	0.8	1.2	2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}$			25	μA
		$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}, T_J = 125\text{ }^\circ\text{C}$			250	

On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	45			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 7V, I_D = 18A$		20	30	m
		$V_{GS} = 10V, I_D = 20A$		15	28	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 15V, I_D = 30A$		16		S

DYNAMIC

Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		600		pF
Output Capacitance	C_{oss}			290		
Reverse Transfer Capacitance	C_{rss}			100		
Total Gate Charge ²	Q_g	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V,$ $I_D = 20A$		25		nC
Gate-Source Charge ²	Q_{gs}			2.9		
Gate-Drain Charge ²	Q_{gd}			7.0		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 15V, R_L = 1$ $I_D \cong 30A, V_{GS} = 10V, R_{GS} = 2.5$		7.0		nS
Rise Time ²	t_r			7.0		
Turn-Off Delay Time ²	$t_{d(off)}$			24		
Fall Time ²	t_f			6.0		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)

Continuous Current	I_S			45		A
Pulsed Current ³	I_{SM}			150		
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$		1.3		V
Reverse Recovery Time	t_{rr}	$I_F = I_S, di_F/dt = 100A / \mu S$		37		nS
Peak Reverse Recovery Current	$I_{RM(REC)}$			200		A
Reverse Recovery Charge	Q_{rr}			0.043		μC

¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH “P45N03LTG”, DATE CODE or LOT #

Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.

TO-220 (3-Lead) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.78	10.16	10.54	H	2.4	2.54	2.68
B	2.61	2.74	2.87	I	1.19	1.27	1.35
C		20		J	4.4	4.6	4.8
D	28.5	28.9	29.3	K	1.14	1.27	1.4
E	14.6	15.0	15.4	L	2.3	2.6	2.9
F	8.4	8.8	9.2	M	0.26	0.46	0.66
G	0.72	0.8	0.88	N		7°	

