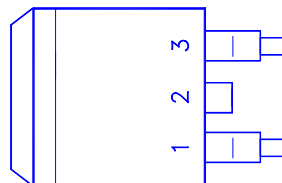
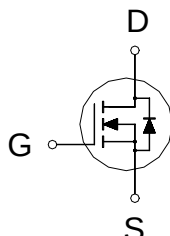


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
25	20m Ω	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	60	W
	$T_C = 100\text{ }^{\circ}\text{C}$		38	
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	$R_{\theta JC}$		2.6	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		60	
Case-to-Heatsink	$R_{\theta CS}$	0.6		

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	25			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.8	1.2	2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			25	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			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	mΩ
		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 = 1Ω I _D ≅ 30A, V _{GS} = 10V, R _{GS} = 2.5Ω		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 / μS		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 $\leq 2\%$.

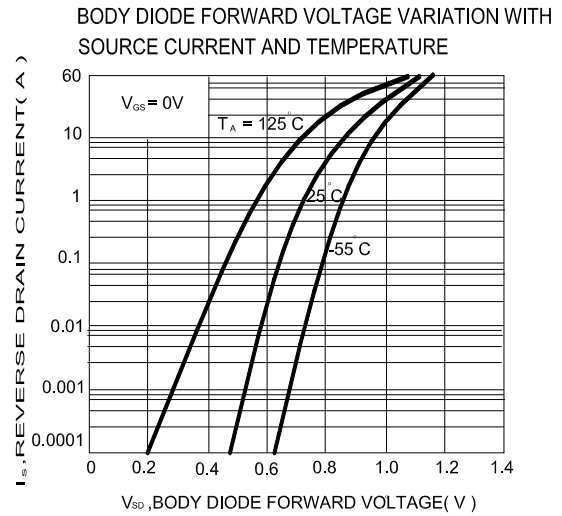
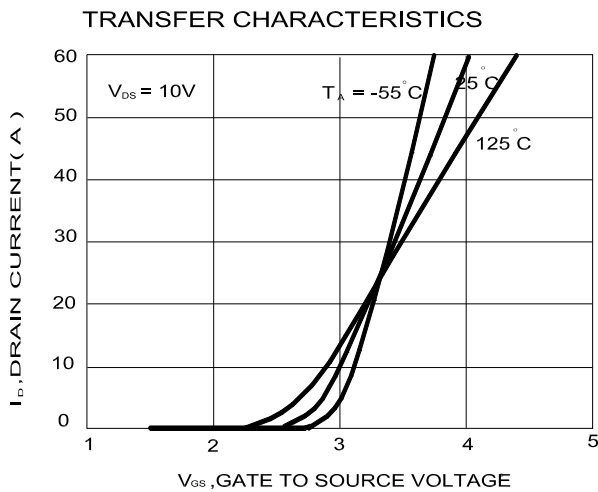
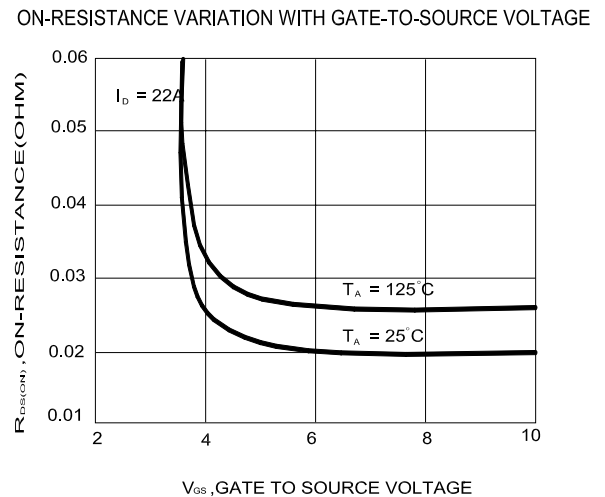
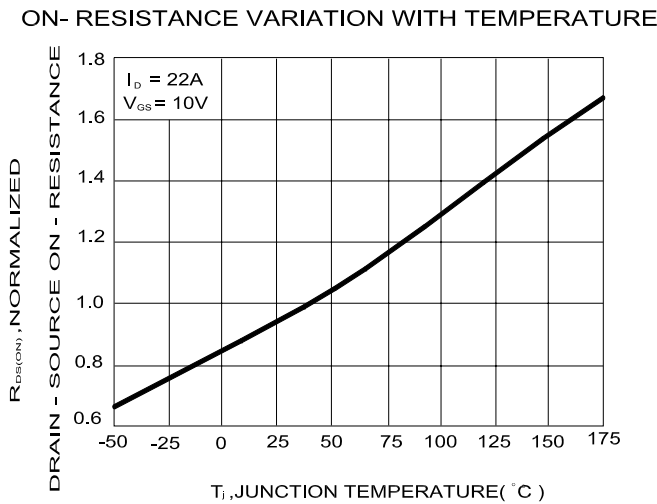
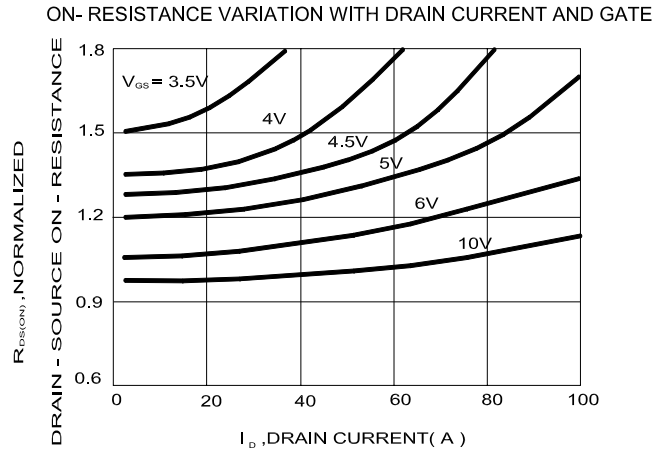
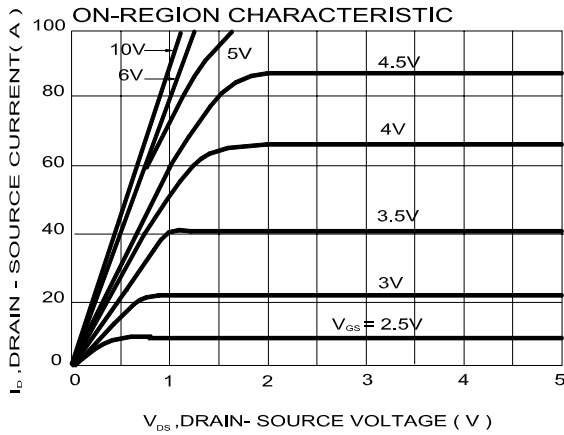
²Independent of operating temperature.

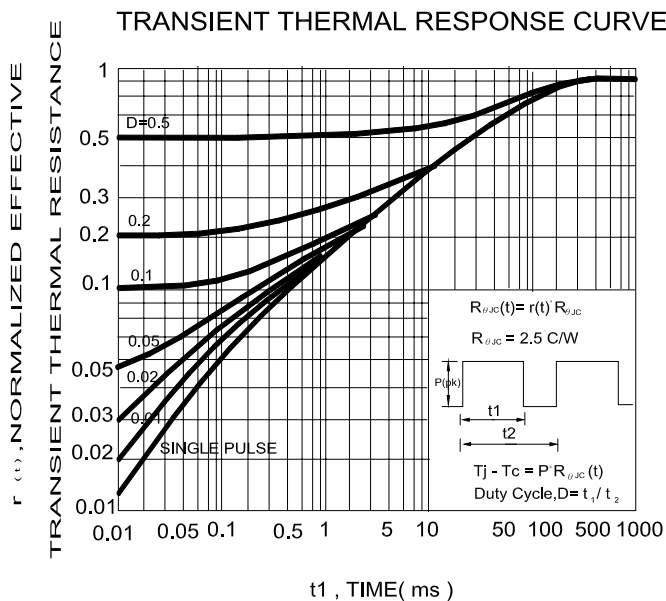
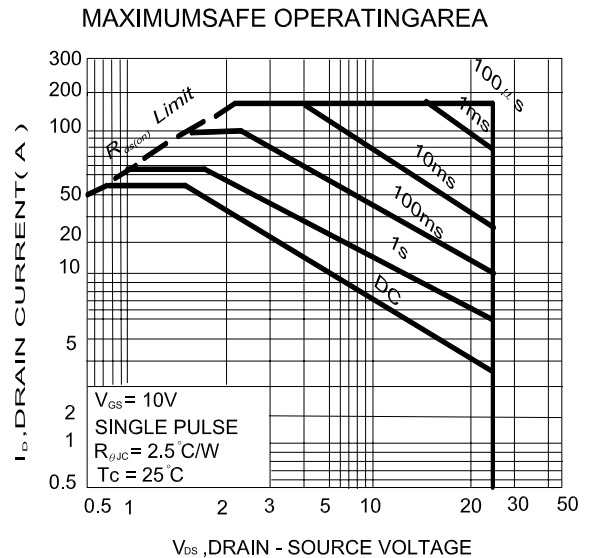
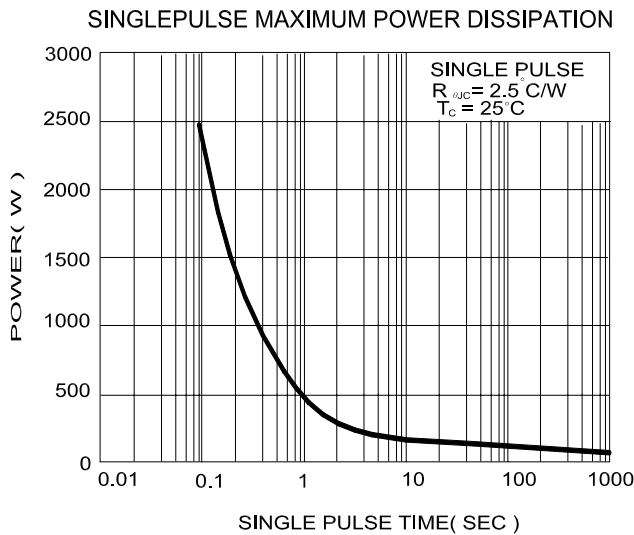
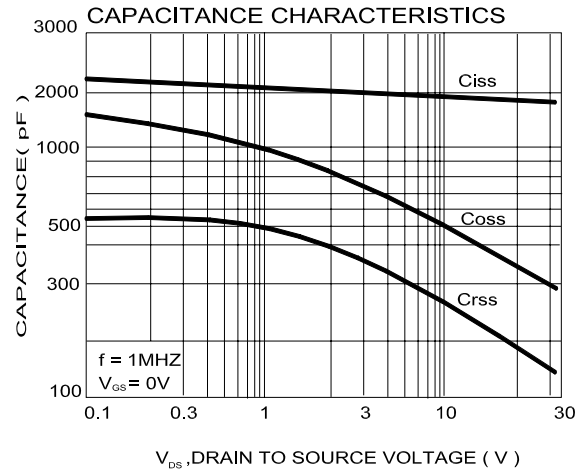
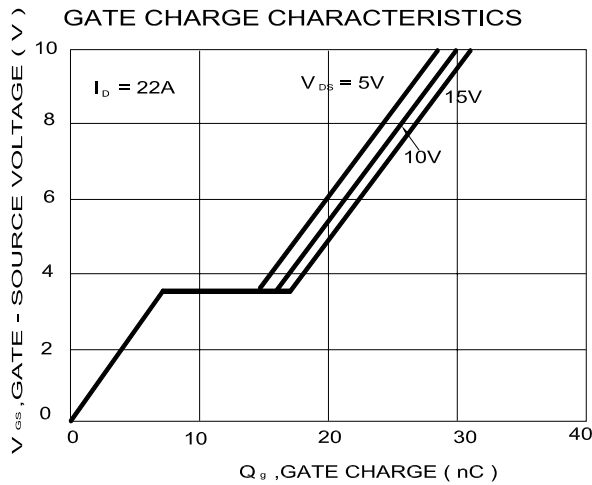
³Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH "P45N02LSG", DATE CODE or LOT #

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

TYPICAL CHARACTERISTICS





TO-263 (D²PAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	14.5	15	15.8	H	1.0	1.5	1.8
B	4.2		4.7	I	9.8		10.3
C	1.20		1.35	J		6.5	
D		2.8		K		1.5	
E	0.3	0.4	0.5	L	0.7		1.4
F	-0.102		0.203	M	4.83	5.08	5.33
G	8.5	9	9.5	N			

