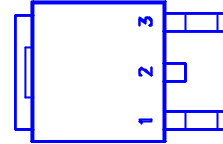
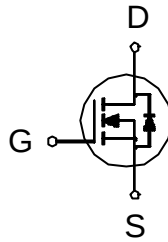


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
25	50m Ω	12A



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}	± 12	V
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	12	A
	$T_C = 100\text{ }^{\circ}\text{C}$		8	
Pulsed Drain Current ¹		I_{DM}	45	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	60	mJ
Repetitive Avalanche Energy ²	$L = 0.05\text{mH}$	E_{AR}	3	
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	48	W
	$T_C = 100\text{ }^{\circ}\text{C}$		20	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Lead Temperature (t_{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	$R_{\theta JA}$		75	
Case-to-Heatsink	$R_{\theta CS}$	1		

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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$			± 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	12			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 5V, I _D = 12A		70	120	mΩ
		V _{GS} = 10V, I _D = 12A		50	90	
Forward Transconductance ¹	g _{fs}	V _{DS} = 15V, I _D = 12A		16		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		450		pF
Output Capacitance	C _{oss}			200		
Reverse Transfer Capacitance	C _{rss}			60		
Total Gate Charge ²	Q _g	V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = 10V, I _D = 6A		15		nC
Gate-Source Charge ²	Q _{gs}			2.0		
Gate-Drain Charge ²	Q _{gd}			7.0		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V, R _L = 1Ω I _D ≅ 12A, V _{GS} = 10V, R _{GS} = 2.5Ω		6.0		nS
Rise Time ²	t _r			6.0		
Turn-Off Delay Time ²	t _{d(off)}			20		
Fall Time ²	t _f			5.0		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)						
Continuous Current	I _S				12	A
Pulsed Current ³	I _{SM}				20	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V			1.5	V
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100A / μS		30		nS
Peak Reverse Recovery Current	I _{RM(REC)}			15		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 “P3056LDG”, DATE CODE or LOT #

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

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.35		10.4	H	0.89		2.03
B	2.2		2.4	I	6.35		6.80
C	0.45		0.6	J	5.2		5.5
D	0.89		1.5	K	0.6		1
E	0.45		0.69	L	0.5		0.9
F	0.03		0.23	M	3.96	4.57	5.18
G	5.2		6.2	N			

