

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-60V	20mΩ@-10V	-50A

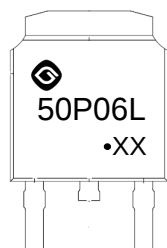
Feature

- High density cell design for ultra low $R_{DS(ON)}$
- Excellent package for good heat dissipation

Application

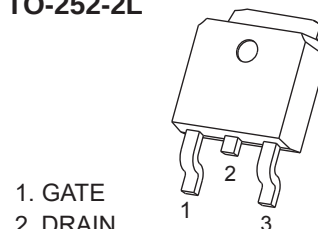
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING:



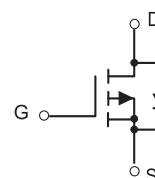
50P06L= Device Code
 XX = Date Code
 Solid Dot = Green Indicator

TO-252-2L



1. GATE
2. DRAIN
3. SOURCE

Schematic diagram



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	-50	A
Continuous Drain Current ¹	$T_C = 100^\circ\text{C}$	I_D	-32	A
Pulsed Drain Current ¹		I_{DM}	-200	A
Single Pulsed Avalanche Current ³		I_{AS}	-25	A
Single Pulsed Avalanche Energy ³		E_{AS}	156	mJ
Power Dissipation ²		P_D	125	W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	1	$^\circ\text{C}/\text{W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

Notes :

- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.And device mounted on a large heatsink
3. E_{AS} condition: $V_{DD} = -25\text{V}$, $V_{GS} = -10\text{V}$, $L = 0.5\text{mH}$, $R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.

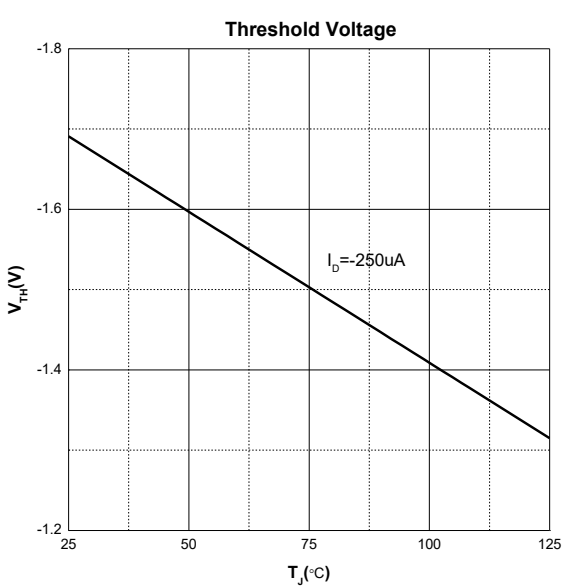
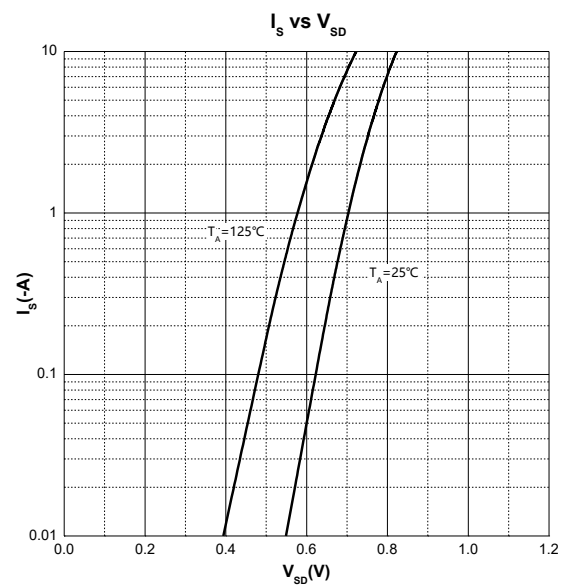
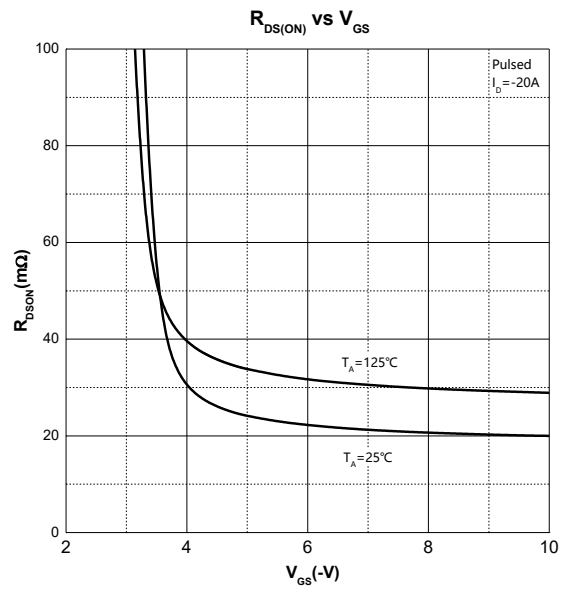
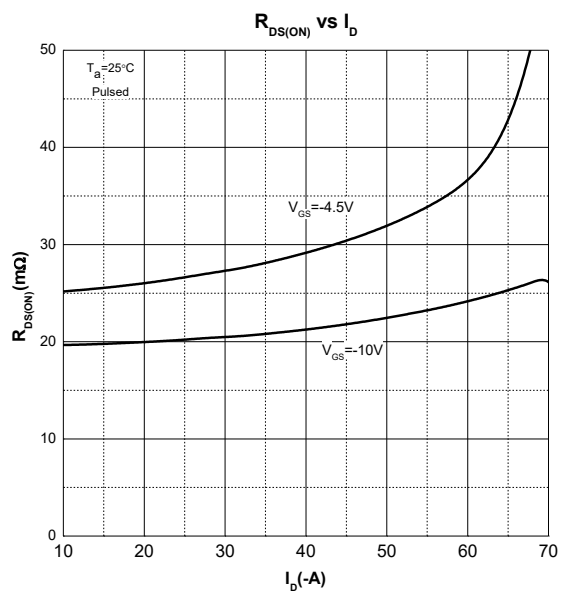
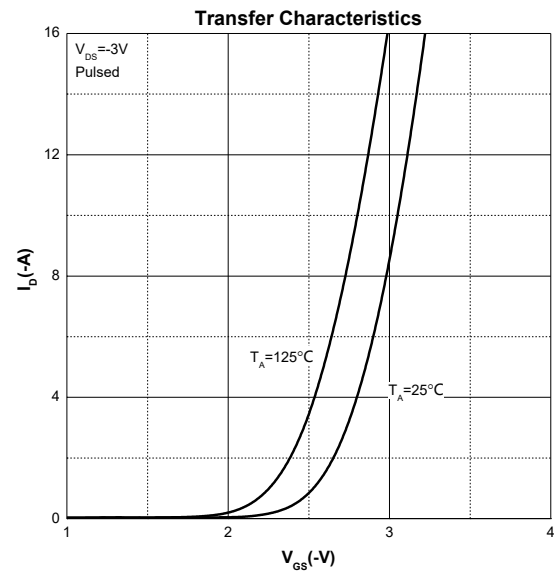
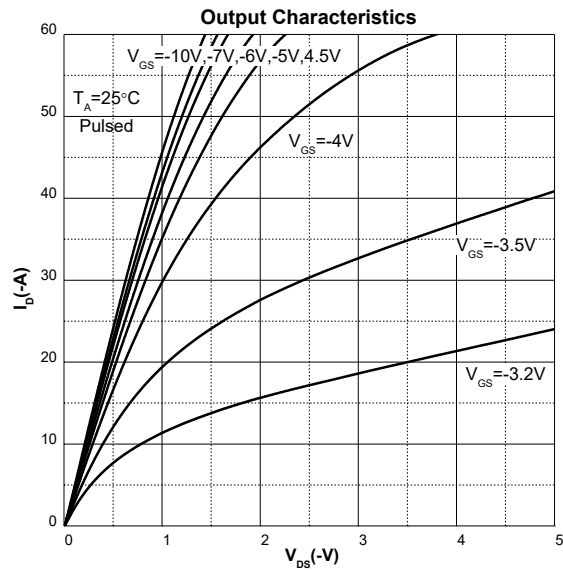
MOSFET ELECTRICAL CHARACTERISTICS(T_A=25°C unless otherwise noted)

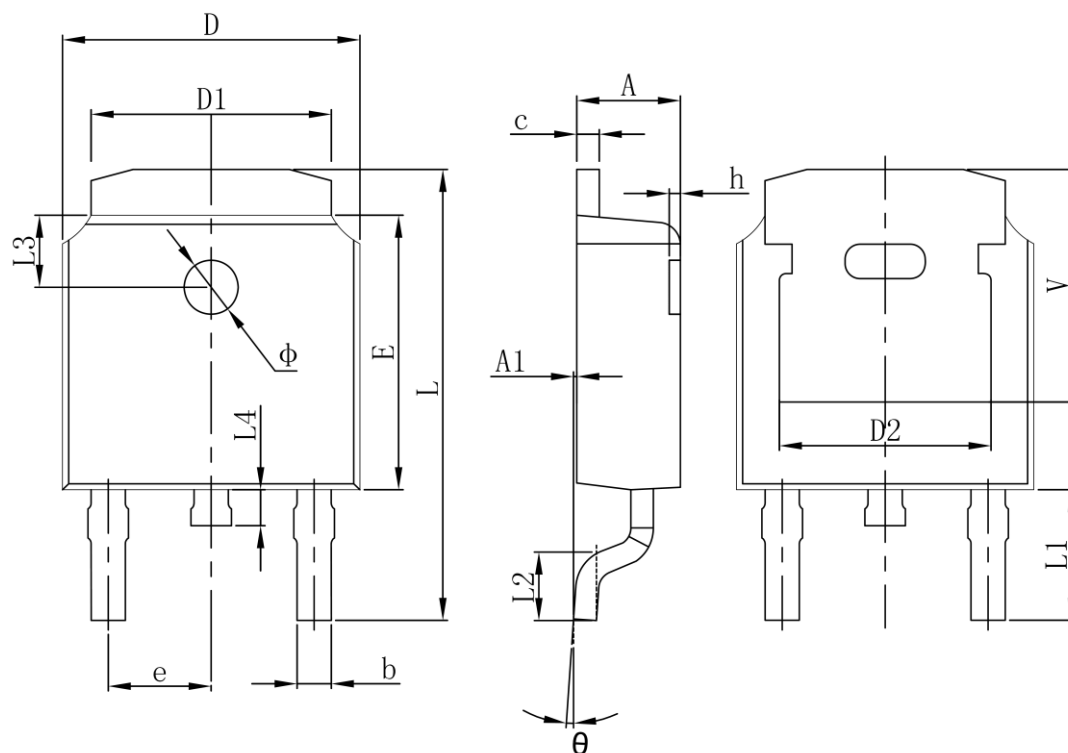
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -60V, V _{GS} = 0V			-1	μA
Gate-body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics						
Gate Threshold Voltage*	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250μA	-1.2	-1.7	-2.5	V
Drain-source On-resistance*	R _{DS(on)}	V _{GS} = -10V, I _D = -15A		20	29	mΩ
Forward Transconductance*	g _{FS}	V _{DS} = -10V, I _D = -10A	15			S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -30V, V _{GS} = 0V, f = 1MHz		2775		pF
Output Capacitance	C _{oss}			169		
Reverse Transfer Capacitance	C _{rss}			142		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -30V, V _{GS} = -10V, I _D = -3A		54		nC
Gate-Source Charge	Q _{gs}			6.9		
Gate-Drain Charge	Q _{gd}			11.3		
Turn-on Delay Time	t _{d(on)}	V _{DD} = -30V, R _G = 1.5Ω, V _{GS} = -10V, R _G = 3Ω,		7		ns
Turn-on Rise Time	t _r			3		
Turn-off Delay Time	t _{d(off)}			32		
Turn-off Fall Time	t _f			6		
Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = -15A			-1.2	V
Diode Forward Current	I _S				-50	A

Note :

*: Pulse test : Pulse width ≤ 380μs, duty cycle ≤ 2%.

Typical Characteristics



TO-252-2L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830REF		0.190REF	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900REF		0.114REF	
L2	1.400	1.700	0.055	0.067
L3	1.600REF		0.063REF	
L4	0.600	1.000	0.024	0.039
ϕ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250REF		0.207REF	

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
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