

EVVOSEMI[®]

THINK CHANGE DO



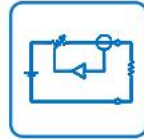
ESD



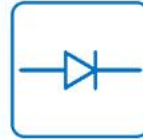
TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

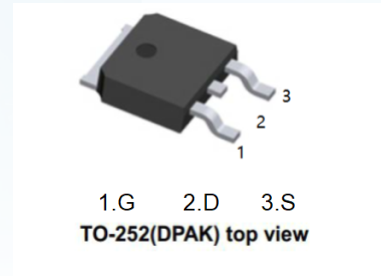
▶ Domestic	Part Number	STD35P6LLF6
▶ Overseas	Part Number	STD35P6LLF6
▶ Equivalent	Part Number	STD35P6LLF6

EV is the abbreviation of name EVVO

-60V P-Channel MOSFET

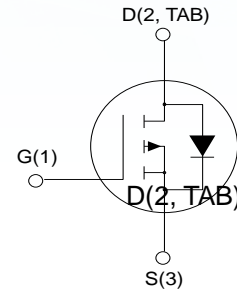
Features

- V_{DS} (V) = -60V
- $R_{DS(ON)} < 27m\Omega$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 35m\Omega$ ($V_{GS} = -4.5V$)
- Very low on-resistance
- Very low gate charge
- High avalanche ruggedness
- Low gate drive power loss



Applications

- Switching applications



G(1)

S(3)

AM11258v1

Electrical ratings

Table 2: Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{DS}	Drain-source voltage	60	V
V_{GS}	Gate-source voltage	± 20	V
I_D	Drain current (continuous) at $T_C = 25\text{ }^\circ\text{C}$	35	A
I_D	Drain current (continuous) at $T_C = 100\text{ }^\circ\text{C}$	25	A
$I_{DM}^{(1)}$	Drain current (pulsed)	140	A
P_{TOT}	Total dissipation at $T_C = 25\text{ }^\circ\text{C}$	70	W
T_{stg}	Storage temperature range	-55 to 175	$^\circ\text{C}$
T_j	Operating junction temperature range		

Notes:

⁽¹⁾Pulse width limited by safe operating area.

Table 3: Thermal data

Symbol	Parameter	Value	Unit
$R_{thj-case}$	Thermal resistance junction-case max	2.14	$^\circ\text{C/W}$

-60V P-Channel MOSFET

Electrical characteristics

($T_C = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Table 4: Static

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source breakdown voltage	$V_{GS} = 0\text{ V}$, $I_D = 250\text{ }\mu\text{A}$	60			V
I_{DSS}	Zero gate voltage Drain current	$V_{GS} = 0\text{ V}$, $V_{DS} = 60\text{ V}$			1	μA
		$V_{GS} = 0\text{ V}$, $V_{DS} = 60\text{ V}$, $T_C = 125\text{ }^\circ\text{C}^{(1)}$			10	μA
I_{GSS}	Gate-body leakage current	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 20\text{ V}$			± 100	nA
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$	-1.1	-1.8	-2.5	V
$R_{DS(on)}$	Static drain-source on-resistance	$V_{GS} = 10\text{ V}$, $I_D = 17.5\text{ A}$		25	27	m Ω
		$V_{GS} = 4.5\text{ V}$, $I_D = 17.5\text{ A}$		30	35	

Notes:

⁽¹⁾Defined by design, not subject to production test.

Table 5: Dynamic

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
C_{iss}	Input capacitance	$V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$, $V_{GS} = 0\text{ V}$		3780		pF
C_{oss}	Output capacitance			262		pF
C_{riss}	Reverse transfer capacitance			170		pF
Q_g	Total gate charge	$V_{DD} = 30\text{ V}$, $I_D = 35\text{ A}$, $V_{GS} = 0$ to 4.5 V (see Figure 14: "Gate charge test circuit")		30		nC
Q_{gs}	Gate-source charge			10.8		nC
Q_{gd}	Gate-drain charge			10.5		nC
R_G	Gate input resistance	$I_D = 0\text{ A}$, gate DC bias = 0 V , $f = 1\text{ MHz}$, magnitude of alternative signal = 20 mV		1.7		Ω

Table 6: Switching times

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-on delay time	$V_{DD} = 30\text{ V}$, $I_D = 17.5\text{ A}$ $R_G = 4.7\text{ }\Omega$, $V_{GS} = 10\text{ V}$ (see Figure 13: "Switching times test circuit for resistive load")		51.4		ns
t_r	Rise time			39		ns
$t_{d(off)}$	Turn-off-delay time			171		ns
t_f	Fall time			21		ns

Table 7: Source drain diode

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{SD}^{(1)}$	Forward on voltage	$V_{GS} = 0\text{ V}$, $I_{SD} = 35\text{ A}$			1.5	V
t_{rr}	Reverse recovery time	$I_{SD} = 35\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$, $V_{DD} = 48\text{ V}$, (see Figure 15: "Test circuit for inductive load switching and diode recovery times")		34		ns
Q_{rr}	Reverse recovery charge			48		nC
I_{RRM}	Reverse recovery current			2.8		A

Notes:

⁽¹⁾Pulse test: pulse duration = $300\text{ }\mu\text{s}$, duty cycle 1.5%

-60V P-Channel MOSFET

Electrical characteristics (curves)

Figure 2: Safe operating area

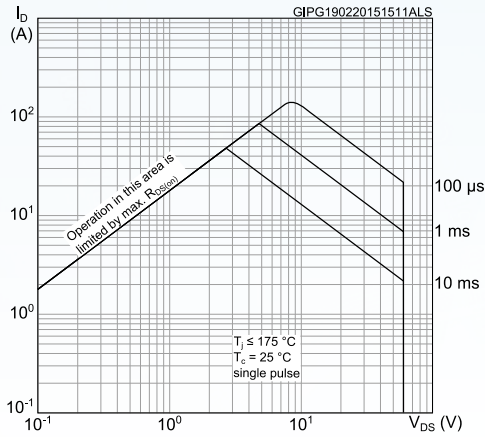


Figure 3: Thermal impedance

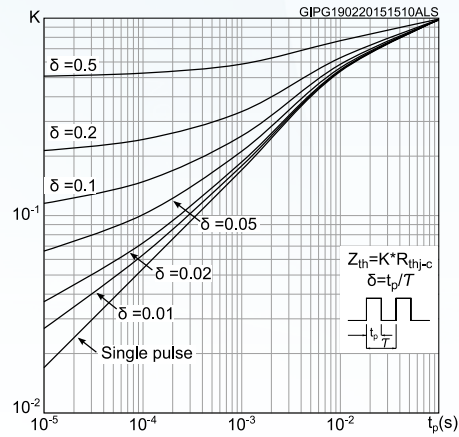


Figure 4: Output characteristics

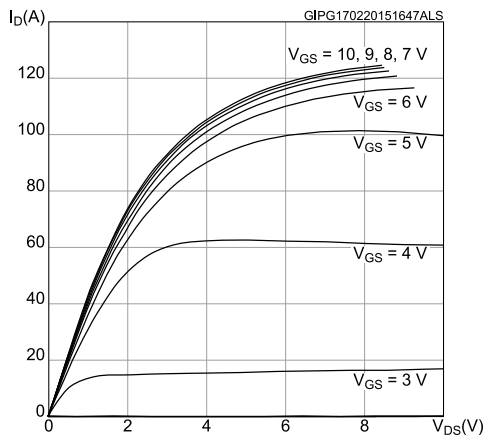


Figure 5: Transfer characteristics

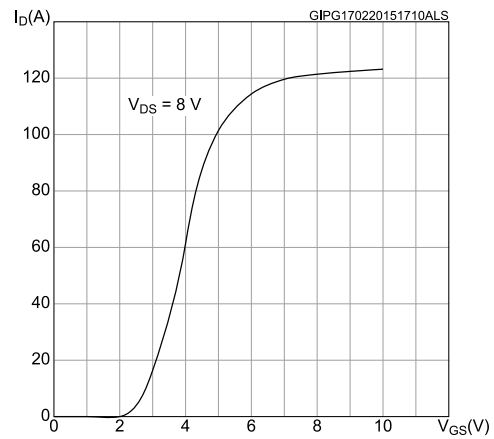


Figure 6: Normalized gate threshold voltage vs temperature

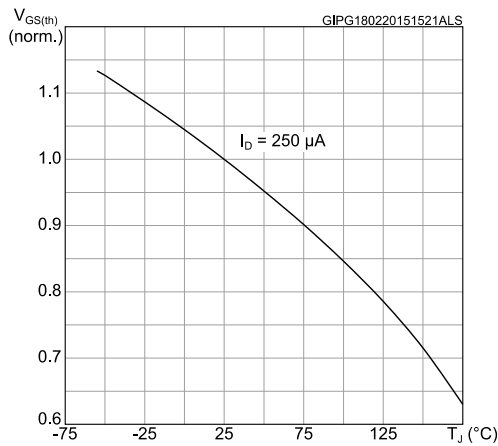
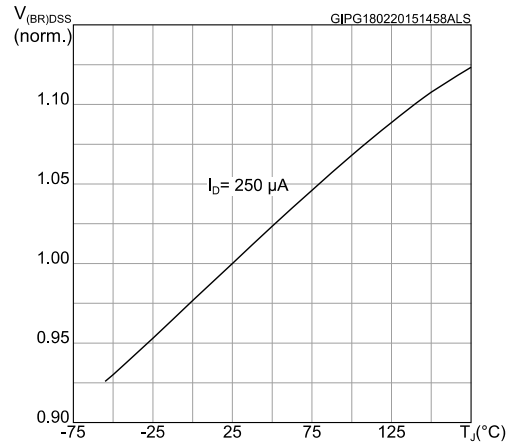


Figure 7: Normalized V(BR)DSS vs temperature



-60V P-Channel MOSFET

Figure 8: Static drain-source on-resistance

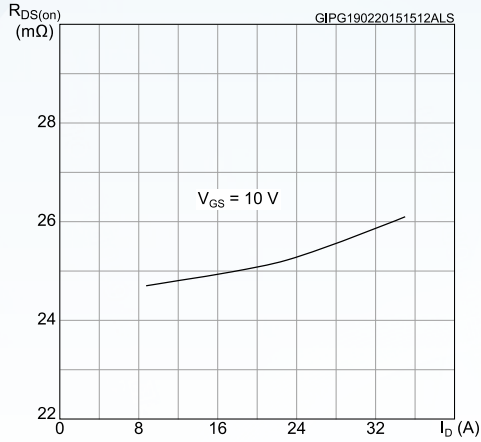


Figure 9: Normalized on-resistance vs. temperature

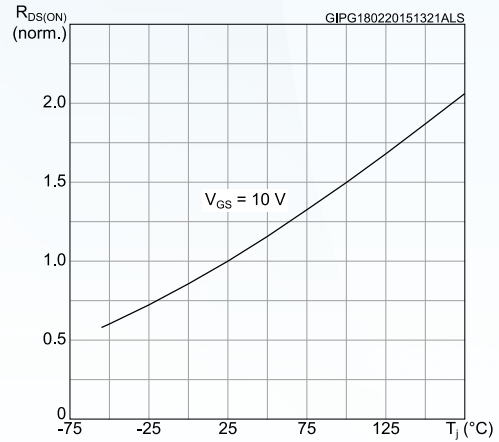


Figure 10: Gate charge vs gate-source voltage

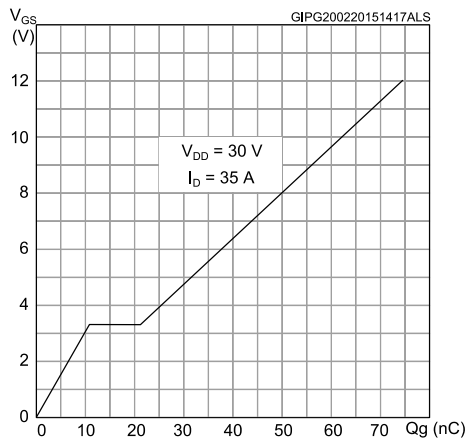


Figure 11: Capacitance variations voltage

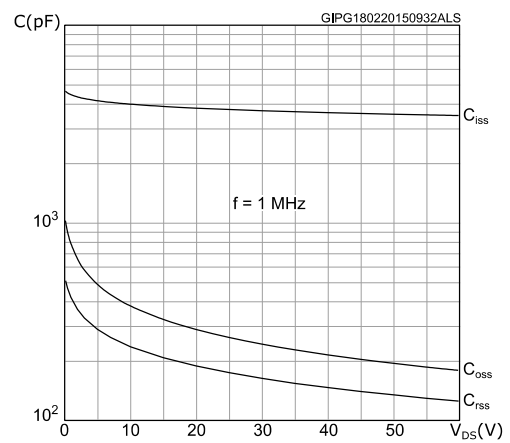
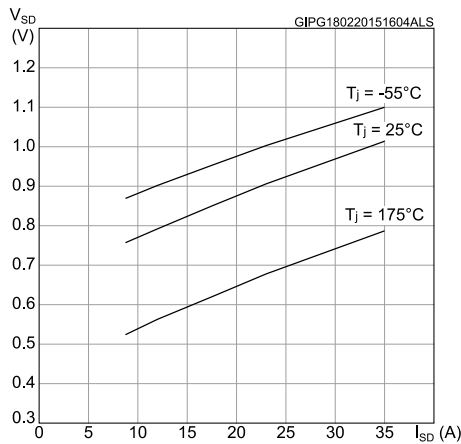
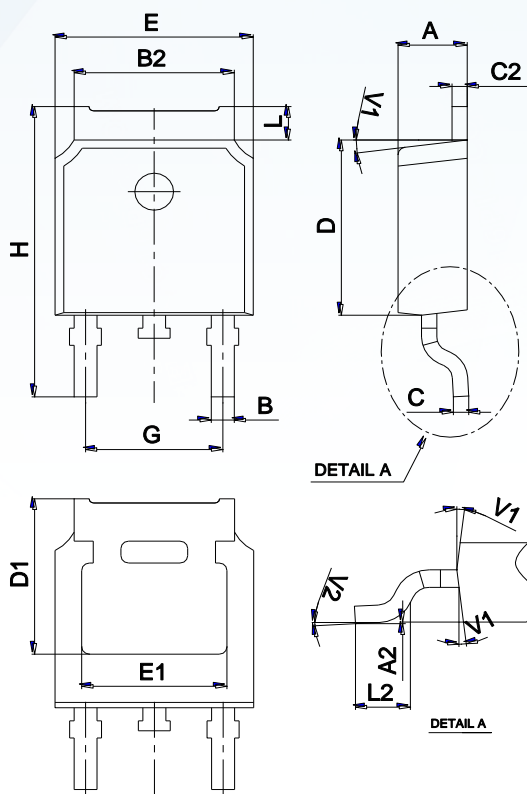


Figure 12: Source-drain diode forward characteristics



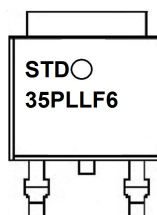
-60V P-Channel MOSFET

Package Mechanical Data TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
STD35P6LLF6	TO-252	2500	Tape and reel

Disclaimer

EVVOSEMI ("EVVO") reserves the right to make corrections, enhancements, improvements, and other changes to its products and services at any time, and to discontinue any product or service without notice.

EVVO warrants the performance of its hardware products to the specifications applicable at the time of sale in accordance with its standard warranty. Testing and other quality control techniques are used as deemed necessary by EVVO to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Customers should obtain and confirm the latest product information and specifications before final design, purchase, or use. EVVO makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does EVVO assume any liability for application assistance or customer product design. EVVO does not warrant or accept any liability for products that are purchased or used for any unintended or unauthorized application.

EVVO products are not authorized for use as critical components in life support devices or systems without the express written approval of EVVOSEMI.

The EVVO logo and EVVOSEMI are trademarks of EVVOSEMI or its subsidiaries in relevant jurisdictions. EVVO reserves the right to make changes without further notice to any products herein.