

60V N-Channel Enhancement Mode MOSFET

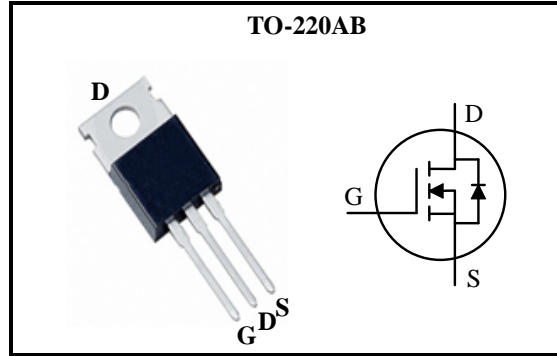
General Features

- Rugged Polysilicon Gate Cell Structure
- High Dense Cell Design for Extremely Low $R_{DS(ON)}$.
- RoHS Compliant
- Halogen-free Available

BV_{DSX}	$R_{DS(ON)}$ (Typ.)	I_D
60V	1.2mΩ	49A

Applications

- Audio Amplifier Applications
- High Speed Switch
- Load Switch
- Motor Driver



Ordering Information

Part Number	Package	Marking	Remark
FTP60N16L	TO-220AB	60N16L	Halogen Free

Absolute Maximum Ratings

$T_A=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	FTP60N16L	Unit
V_{DSX}	Drain-to-Source Voltage ^[1]	60	V
V_{DGX}	Drain-to-Gate Voltage ^[1]	60	V
I_D	Continuous Drain Current	49	A
I_{DM}	Pulsed Drain Current ^[2]	100	
P_D	Power Dissipation	80	W
V_{GS}	Gate-to-Source Voltage	±20	V
T_L	Soldering Temperature Distance of 1.6mm from case for 10 seconds	300	°C
T_J & T_{STG}	Operating and Storage Temperature Range	-55 to 150	

Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device.

Thermal Characteristics

Symbol	Parameter	FTP60N16L	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	1.56	°C/W

Electrical Characteristics

OFF Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSX}	Drain-to-Source Breakdown Voltage	60	--	--	V	$V_{GS}=0V, I_D=250\mu A$
I_{DSS}	Drain-to-Source Leakage Current	--	--	10	μA	$V_{DS}=60V, V_{GS}=0V$
I_{GSS}	Gate-to-Source Leakage Current	--	--	100	nA	$V_{GS}=20V, V_{DS}=0V$
		--	--	-100		$V_{GS}=-20V, V_{DS}=0V$

ON Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	1.2	1.6	m Ω	$V_{GS}=10V, I_D=10A$ ^[3]
$V_{GS(TH)}$	Gate Threshold Voltage	1.0	--	3.0	V	$V_{GD}=0V, I_D=50\mu A$
gfs	Forward Transconductance	--	--	--	S	$V_{DS}=5V, I_D=10A$

Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
C_{iss}	Input Capacitance	--	--	--	pF	$V_{GS}=0V$ $V_{DS}=25V$ $f=1.0MHz$
C_{oss}	Output Capacitance	--	--	--		
C_{rss}	Reverse Transfer Capacitance	--	--	--		
Q_g	Total Gate Charge	--	--	--	nC	$V_{GS}=10V$ $V_{DS}=30V$ $I_D=10A$
Q_{gs}	Gate-to-Source Charge	--	--	--		
Q_{gd}	Gate-to-Drain (Miller) Charge	--	--	--		

Resistive Switching Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$t_{d(on)}$	Turn-on Delay Time	--	--	--	ns	$V_{GS}=10V$ $V_{DD}=30V$ $I_D=10A$ $R_G=3.3\Omega$
t_{rise}	Rise Time	--	--	--		
$t_{d(off)}$	Turn-off Delay Time	--	--	--		
t_{fall}	Fall Time	--	--	--		



Source-Drain Diode Characteristics

T_A=25°C unless otherwise specified

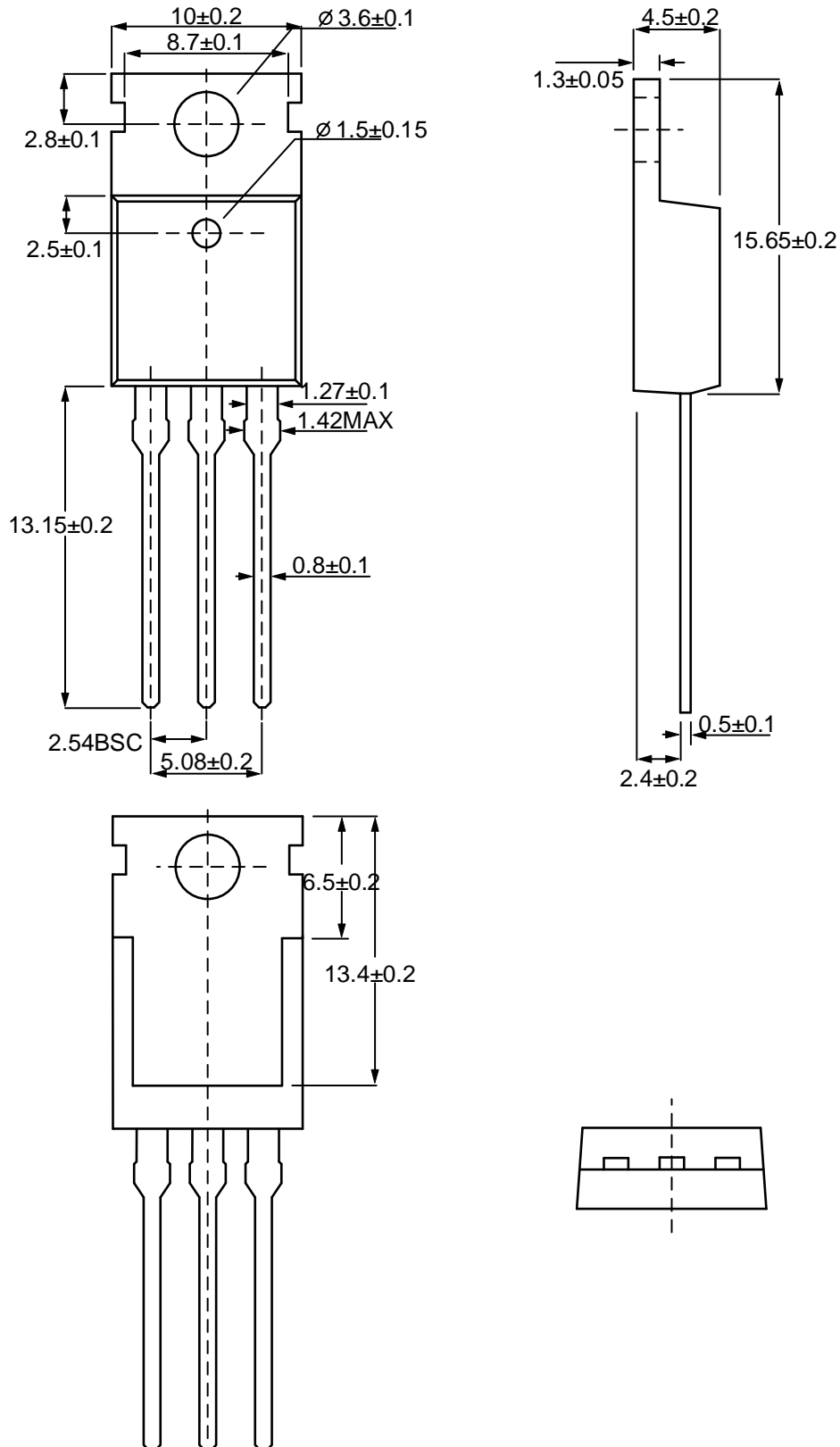
Symbol	Parameter	Min	Typ.	Max.	Unit	Test Conditions
V _{SD}	Diode Forward Voltage	--	--	1.5	V	I _{SD} =10A, V _{GS} =0V

NOTE:

- [1] T_j=+25°C to +150°C.
- [2] Repetitive rating, pulse width limited by maximum junction temperature.
- [3] Pulse width≤380μs, duty cycle≤2%.

Package Dimensions

TO-220AB





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