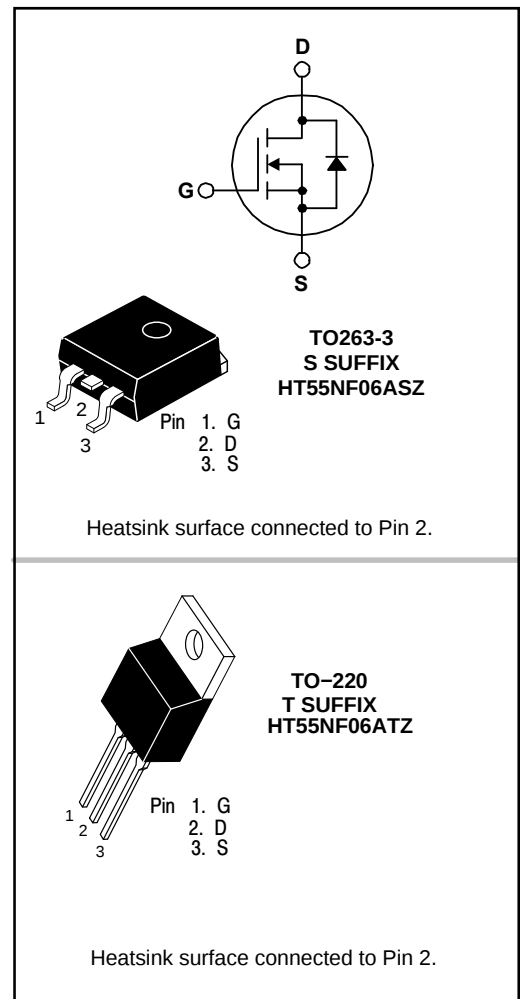


N-Channel MOSFET

Features

- $R_{DS(on)}$ (Max 0.018 Ω)@ $V_{GS}=10V$
- Gate Charge (Typical 25nC)
- Maximum Junction Temperature Range (175 °C)



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DSS}	Drain to Source Voltage	60	V
I_D	Continuous Drain Current(@ $T_C = 25\text{ }^{\circ}\text{C}$)	55	A
	Continuous Drain Current(@ $T_C = 100\text{ }^{\circ}\text{C}$)	35	A
I_{DM}	Drain Current Pulsed	200 ¹⁾	A
V_{GS}	Gate to Source Voltage	± 20	V
E_{AS}	Single Pulsed Avalanche Energy	100 ²⁾	mJ
E_{AR}	Repetitive Avalanche Energy	120 ¹⁾	mJ
dv/dt	Peak Diode Recovery dv/dt	70 ³⁾	V/ns
P_D	Total Power Dissipation(@ $T_C = 25\text{ }^{\circ}\text{C}$)	120	W
	Derating Factor above 25 °C	0.8	W/°C
T_{STG}	Operating Junction Temperature	-55 ~ 175	°C
T_J	Storage Temperature	150	°C

Notes

- 1) Repeativity rating : pulse width limited by junction temperature
- 2) $L = 230\text{ }\mu\text{H}$, $I_{AS} = 55\text{ A}$, $V_{DD} = 50\text{ V}$, $R_G = 25\text{ }\Omega$, Starting $T_J = 25\text{ }^{\circ}\text{C}$
- 3) $I_{SD} \leq 55\text{ A}$, $di/dt \leq 300\text{ A/us}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25\text{ }^{\circ}\text{C}$

Thermal Characteristics

Symbol	Parameter	Value			Units
		Min.	Typ.	Max.	
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	-	-	1.24	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient*	-	0.5	-	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	-	-	62.5	°C/W

* When mounted on the minimum pad size recommended (PCB Mount)

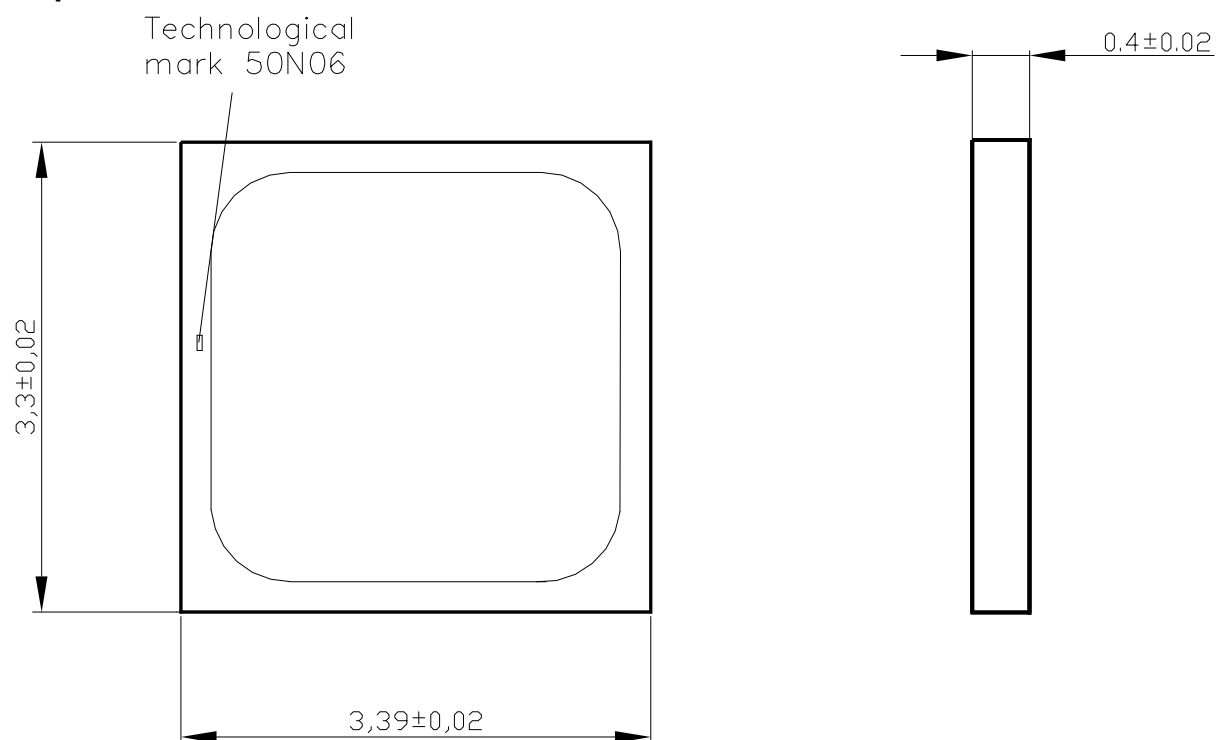
Source-Drain Diode Characteristics and Maximum Ratings

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
I_S	Maximum Continuous Source-Drain Diode Forward Current	$I_S = 60 \text{ A}, V_{GS} = 0 \text{ V}$ $dI_F/dt = 100 \text{ A/us}$	-	-	55	A
I_{SM}	Maximum Pulsed Source-Drain Diode Forward Current		-	-	200	
V_{SD}	Diode Forward Voltage		-	-	1.5	V
t_{rr}	Reverse Recovery Time	$I_S = 60 \text{ A}, V_{GS} = 0 \text{ V},$ $dI_F/dt = 100 \text{ A/us}$	-	50	-	ns
Q_{rr}	Reverse Recovery Charge		-	70	-	uC

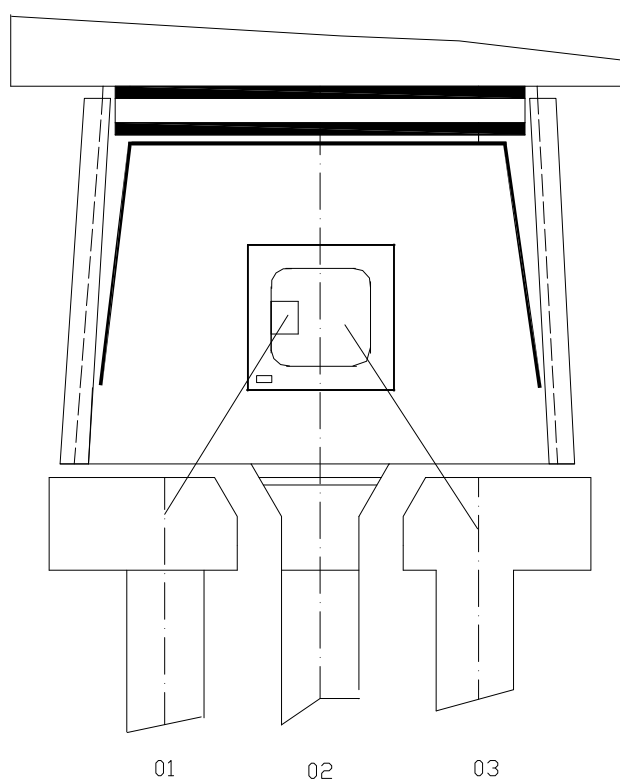
Electrical Characteristics ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 uA	60	-	-	V
ΔBV _{DSS} / ΔT _J	Breakdown Voltage Temperature coefficient	I _D = 250 uA, referenced to 25 °C	-	0.07	-	V/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} = 60 V, V _{GS} = 0 V	-	-	10	uA
		V _{DS} = 48 V, T _C = 125 °C	-	-	100	uA
I _{GSS}	Gate-Source Leakage, Forward	V _{GS} = 20 V, V _{DS} = 0 V	-	-	100	nA
	Gate-source Leakage, Reverse	V _{GS} = -20 V, V _{DS} = 0 V	-	-	-100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 uA	2.0	-	4.0	V
R _{DS(ON)}	Static Drain-Source On-state Resis-tance	V _{GS} = 10 V, I _D = 25.0 A	-	-	0.018	Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} =25 V, f = 1 MHz	-	1050	1365	pF
C _{oss}	Output Capacitance		-	460	600	
C _{rss}	Reverse Transfer Capacitance		-	70	90	
Dynamic Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} = 30 V, I _D =25.0 A, R _G =25 Ω Pulse Width ≤ 300us, Q > 50	-	20	50	ns
t _r	Rise Time		-	100	210	
t _{d(off)}	Turn-off Delay Time		-	80	170	
t _f	Fall Time		-	85	180	
Q _g	Total Gate Charge	V _{DS} = 48 V, V _{GS} = 10 V, I _D = 60 A	-	32	42	nC
Q _{gs}	Gate-Source Charge		-	8	-	
Q _{gd}	Gate-Drain Charge(Miller Charge)		-	12	-	

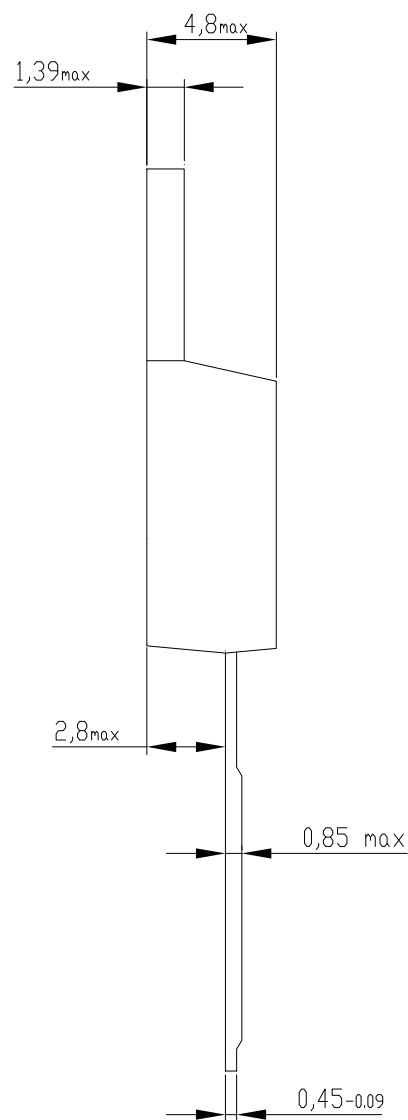
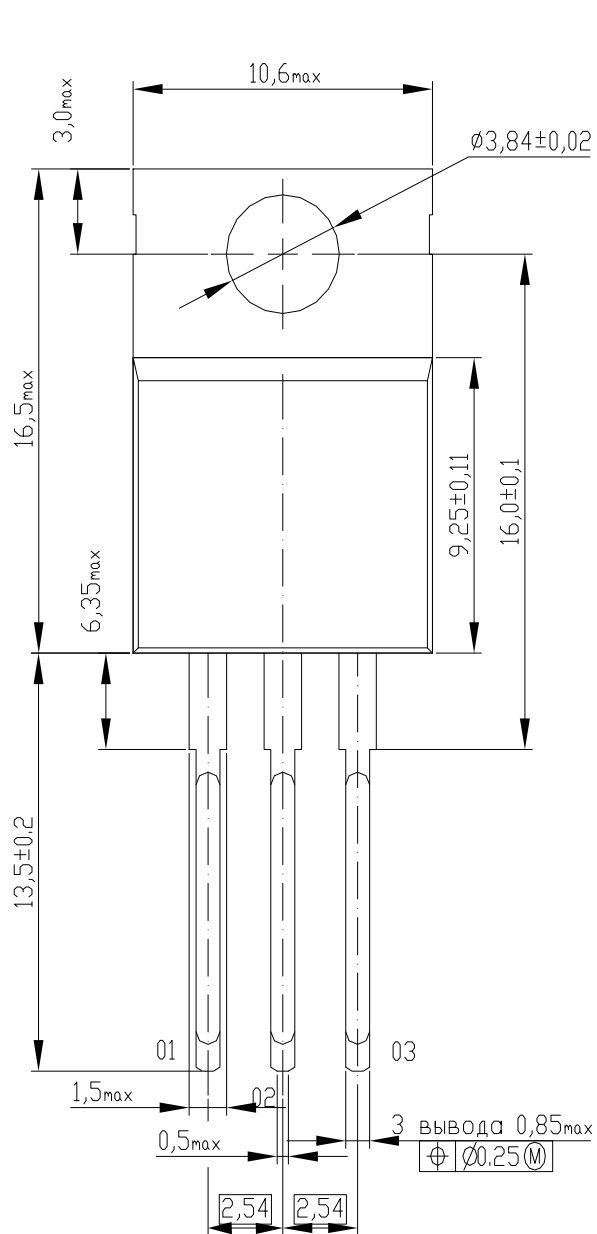
Chip size



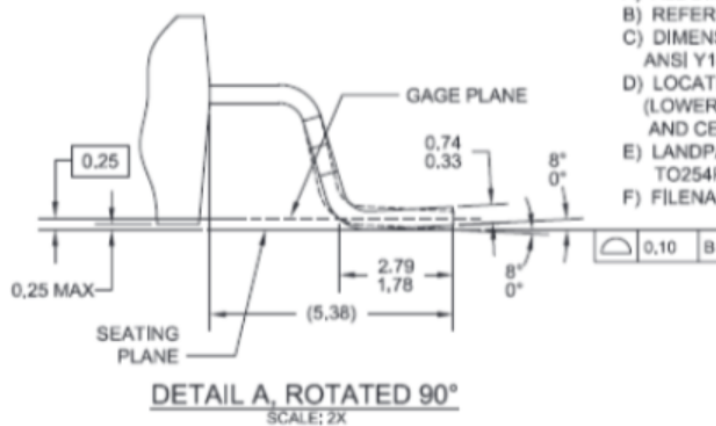
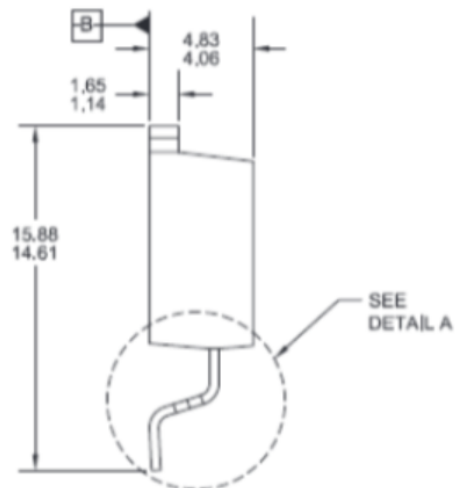
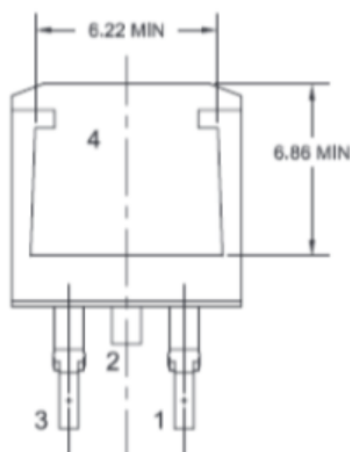
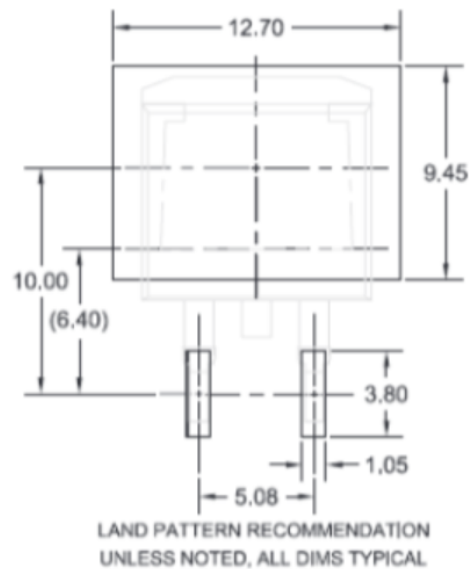
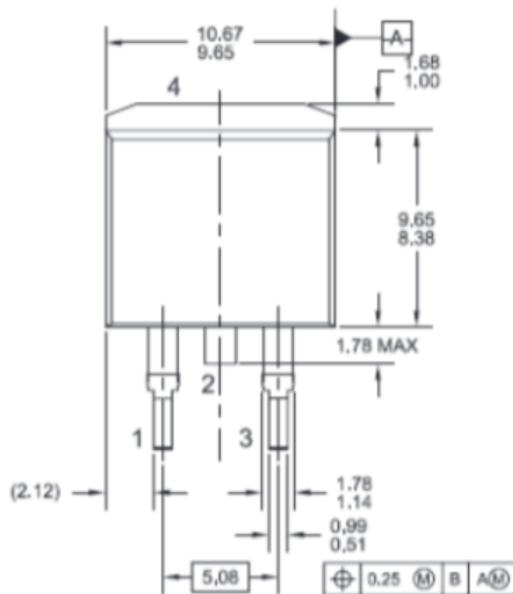
Package Chip



Package Dimensions TO-220 AB/3



Package Dimensions TO-263-3



NOTES: UNLESS OTHERWISE SPECIFIED

- A) ALL DIMENSIONS ARE IN MILLIMETERS.
- B) REFERENCE JEDEC, TO-263, VARIATION AB.
- C) DIMENSIONING AND TOLERANCING PER
ANSI Y14.5M - 1994.
- D) LOCATION OF THE PIN HOLE MAY VARY
(LOWER LEFT CORNER, LOWER CENTER
AND CENTER OF THE PACKAGE).
- E) LANDPATTERN RECOMMENDATION PER IPC
TO254P1524X482-3N
- F) FILENAME: TO263A02REV6