N-Channel 60V (D-S) Power MOSFET

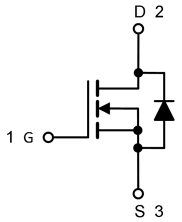
Features

- 100% Avalanche Tested
- Extremely Low Losses with Low FOM Rdson*Qg
- Halogen Free, Pb-Free
- RoHS Compliant

TO-252 (D-PAK)

Applications

- DC/DC
- Motors, lamps
- Power switching



Absolute Maximum Ratings (T_J=25°C unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain Source Voltage		V_{DS}	60	V
Gate Source Voltage		V_{GS}	±20	V
Drain Current, Continuous V_{GS}=10V *(Note 1)*	T_C=25°C	I_D	80	A
Drain Current, Pulsed *(Note 2)*		I_{DM}	320	A
Single Avalanche Energy@ L=0.5mH		E_{AS}	398	mJ
Power Dissipation*(Note 3)*	T_C=25°C	P_D	108	W
Operating Junction/ Storage Temperature Range		T_J/ T_{STG}	-55 to +150	°C

Note 1: Calculated continuous current based on maximum allowable junction temperature.
Note 2: Repetitive rating; pulse width limited by max. junction temperature.

Thermal Characteristics

Parameter	Symbol	Max	Unit
Thermal Resistance Junction to Case*(Note 3)*	R_{thJC}	1.4	°C/W

Note 3: The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.

Electrical Characteristics (T_J =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V	--	--	1	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=250uA	2	--	4	V
Gate Leakage Current	I_{GSS}	V_{GS}=±10V, V_{DS}=0V	--	--	±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A	--	5.7	8	mΩ
Total Gate Charge	Q_g	I_D = 30A, V_{DS}=30V, V_{GS} = 15V	--	71.2	--	nC
Gate-Source Charge	Q_{gs}		--	16.4	--	
Gate-Drain Charge	Q_{gd}		--	23.3	--	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=30V, R_{GEN}=3Ω, I_D = 30A	--	18.6	--	ns
Turn-on Rise Time	t_r		--	11.6	--	
Turn-off Delay Time	$t_{d(off)}$		--	106	--	
Turn-off Fall Time	t_f		--	60.8	--	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=50V, f=1MHz	--	3934	--	pF
Output Capacitance	C_{oss}		--	209	--	
Reverse Transfer Capacitance	C_{rss}		--	191	--	

Reverse Diode Characteristics (T_J =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	I_S	T_C=25°C	--	--	80	A
Pulsed Source Current (Body Diode)	I_{SM}		--	--	320	
Diode Forward Voltage	V_{SD}	I_S=30A, V_{GS}=0V	--	--	1.2	V
Reverse Recovery Time	T_{rr}	I_F =30A, di/dt = 100 A/μs	--	31.4	--	ns
Reverse Recovery Charge	Q_{rr}		--	31.1	--	nC

Typical Characteristics Curves (T_J = 25℃ unless otherwise noted)

Fig.1 - Typical Output Characteristics

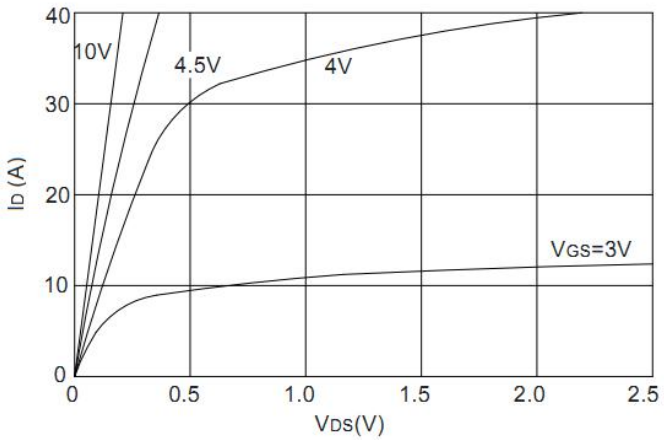


Fig.2 - Transfer Characteristics

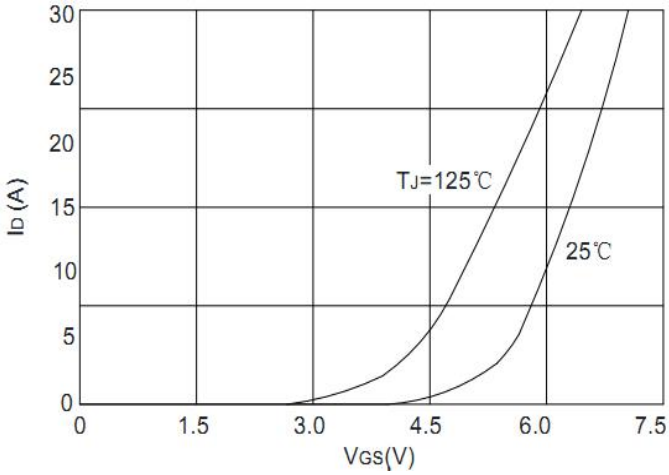


Fig.3 - Gate to Source Cut-off Voltage

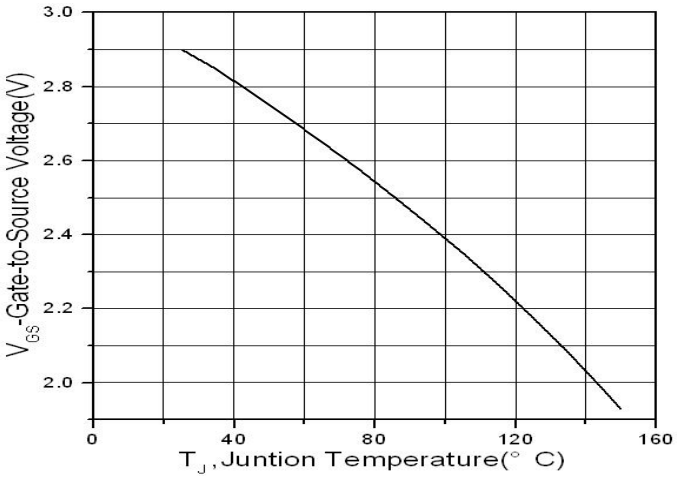


Fig.4 - Body Diode Characteristics

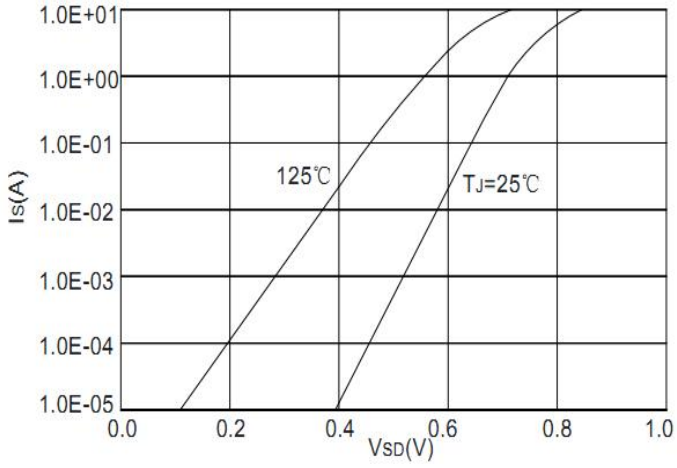


Fig.5 - Gate Charge

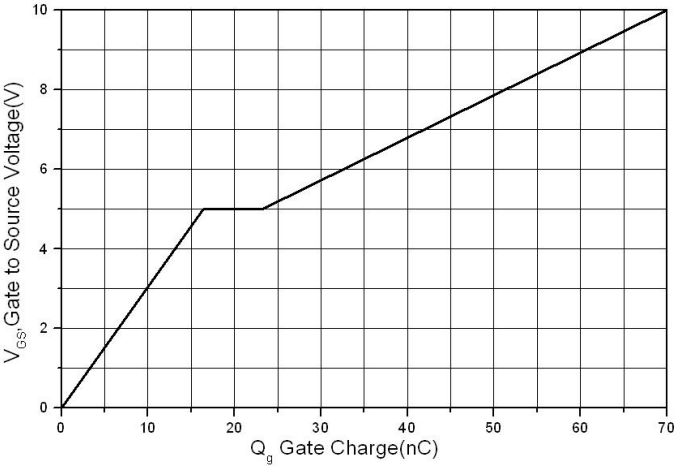
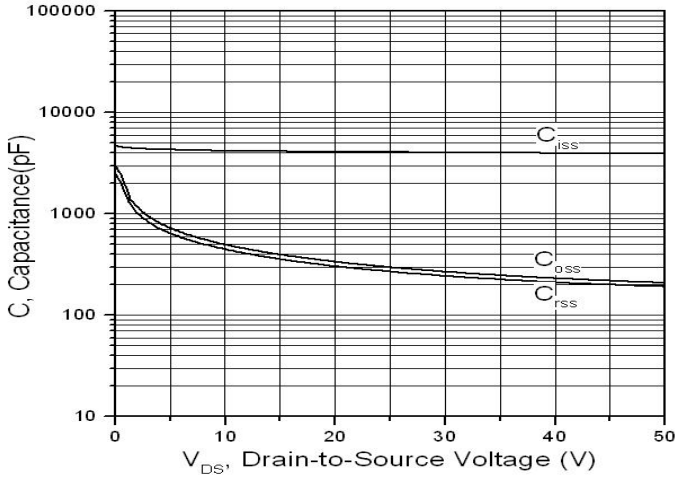


Fig.6 - Capacitance



Typical Characteristics Curves (T_J = 25℃ unless otherwise noted)

Fig.7 - Drain-to-Source Breakdown Voltage vs. Temperature

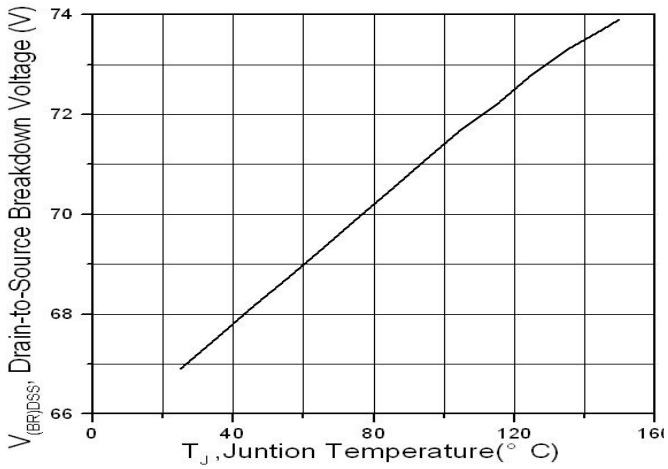


Fig.8 - Normalized On-Resistance vs. Junction Temperature

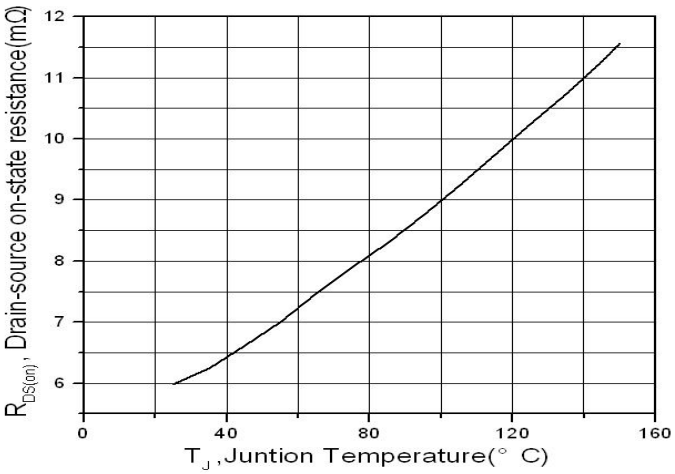


Fig.9 - Safe Operating Area

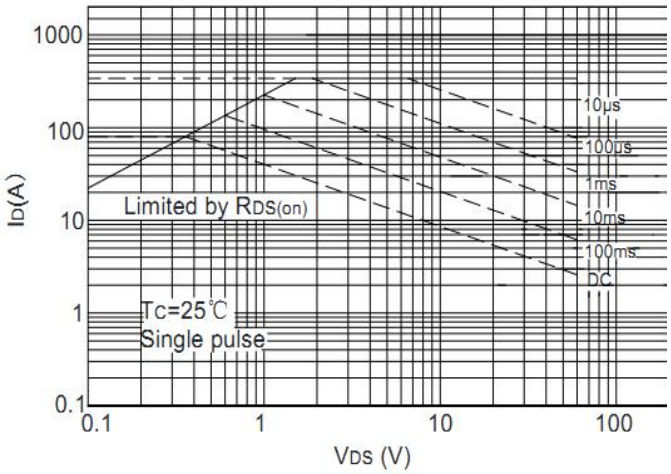


Fig.10 - Drain Current vs. Case Temperature

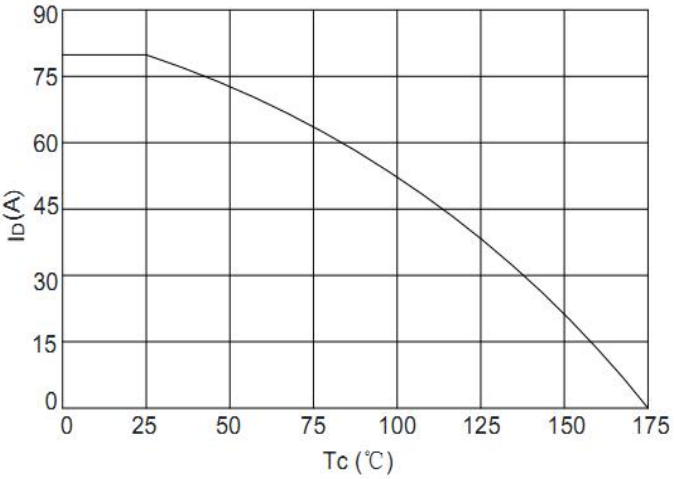
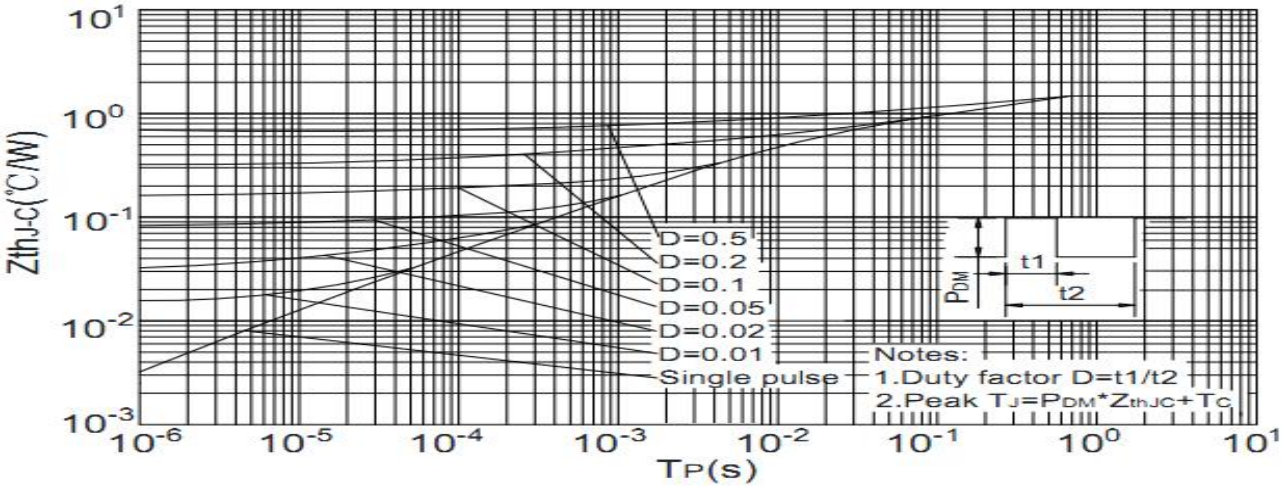


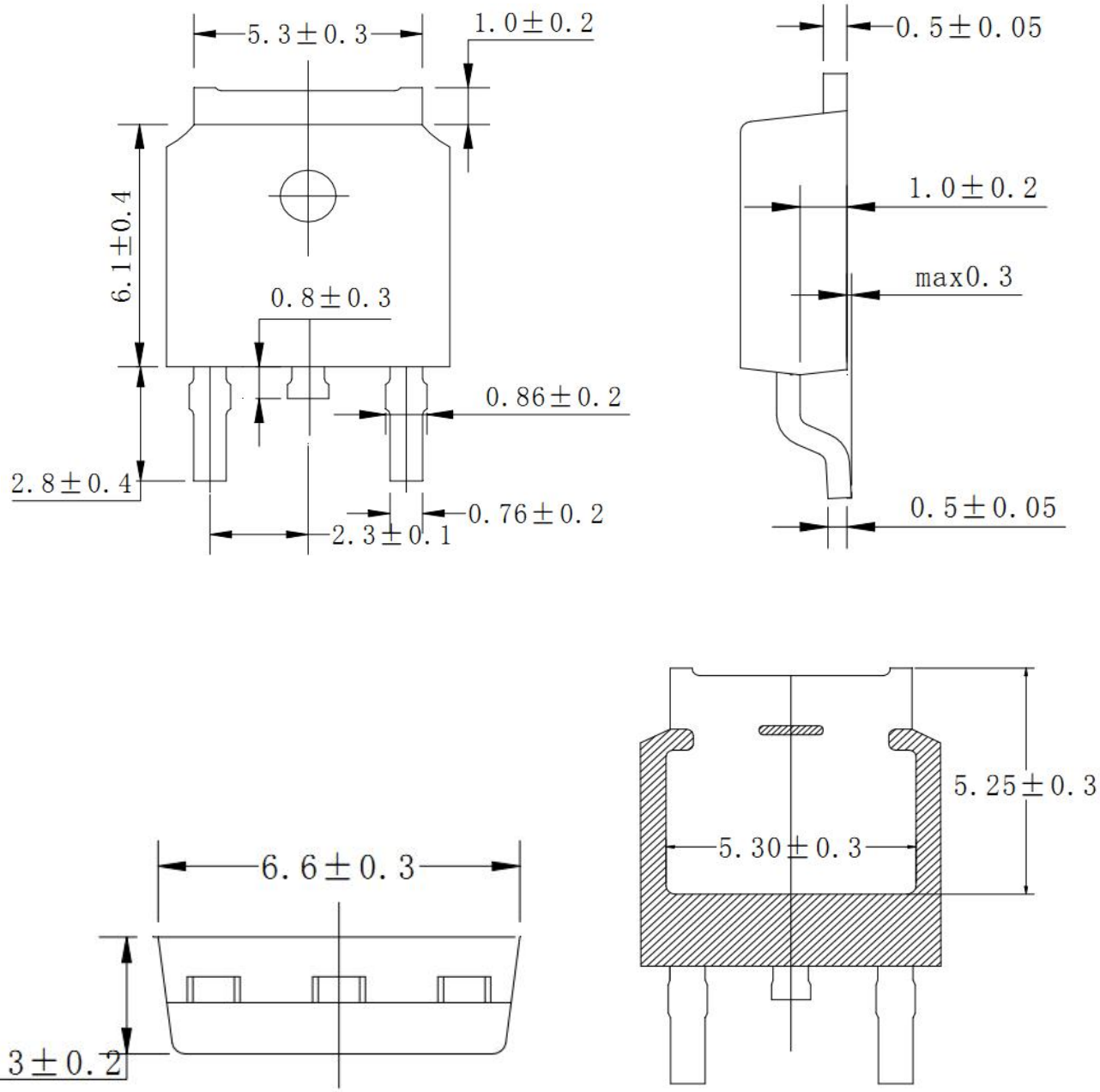
Fig.11 - Normalized Maximum Transient Thermal Impedance



Package Outline Dimensions (Unit: millimeters)

TO-252(D-PAK)

Option1:



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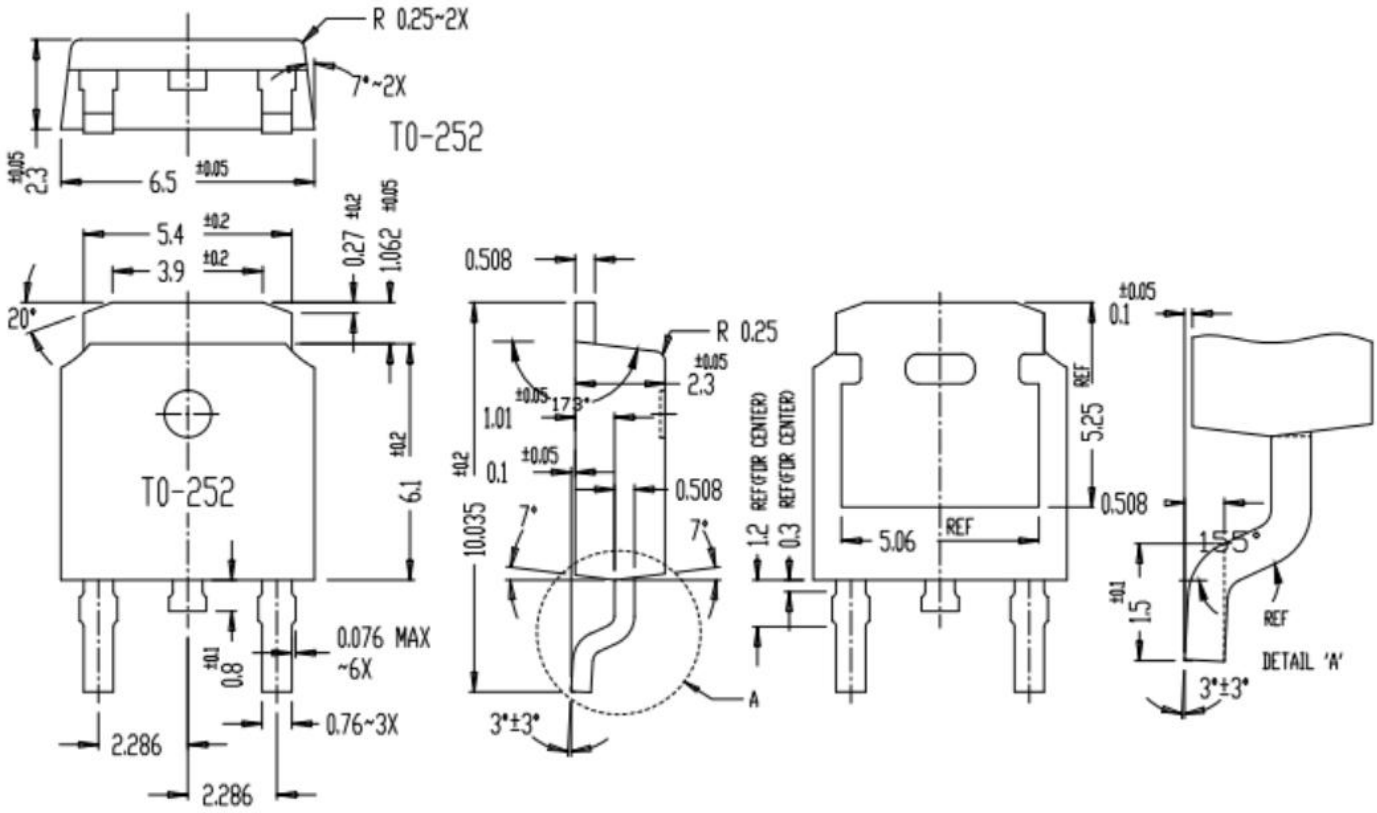
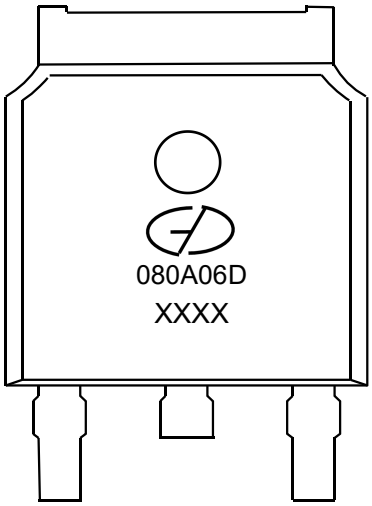

R 0.25~2X
7°~2X
TO-252
6.5
5.4
3.9
20°
TO-252
0.076 MAX
~6X
0.76~3X
2.286
2.286
0.508
R 0.25
2.3
1.01
0.1
0.508
7°
10.035
3°±3°
A
1.2
0.3
5.06
REF
5.25
0.1
1.5
15°
REF
DETAIL 'A'
3°±3°

Marking Outline



Part Name: GMN080A06D

1. Logo Mark:
2. P/N Mark: 080A06D
3. Date Code: XXXX

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