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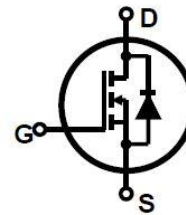
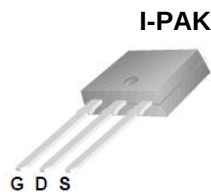
GP1M003A090C GP1M003A090PH

N-channel MOSFET

Features

- Low gate charge
- 100% avalanche tested
- Improved dv/dt capability
- RoHS compliant
- Halogen free package
- JEDEC Qualification

BV_{DSS}	I_D	$R_{DS(on)}$
900V	2.5A	$<5.1\Omega$



Device	Package	Marking	Remark
GP1M003A090C	D-PAK	GP1M003A090C	RoHS
GP1M003A090PH	I-PAK	GP1M003A090PH	Halogen Free

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	900	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	$T_C = 25^\circ\text{C}$	A
		$T_C = 100^\circ\text{C}$	A
Pulsed Drain Current (Note 1)	I_{DM}	10	A
Single Pulse Avalanche Energy (Note 2)	E_{AS}	16.6	mJ
Repetitive Avalanche Current (Note 1)	I_{AR}	2.5	A
Repetitive Avalanche Energy (Note 1)	E_{AR}	9.4	mJ
Power Dissipation	P_D	$T_C = 25^\circ\text{C}$	W
		Derate above 25°C	W/ $^\circ\text{C}$
Peak Diode Recovery dv/dt (Note 3)	dv/dt	4.5	V/ns
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	300	$^\circ\text{C}$

* Limited only by maximum junction temperature

Thermal Characteristics

Parameter	Symbol	Value	Unit
Maximum Thermal resistance, Junction-to-Case	$R_{\theta JC}$	1.33	$^\circ\text{C/W}$
Maximum Thermal resistance, Junction-to-Ambient	$R_{\theta JA}$	110	$^\circ\text{C/W}$

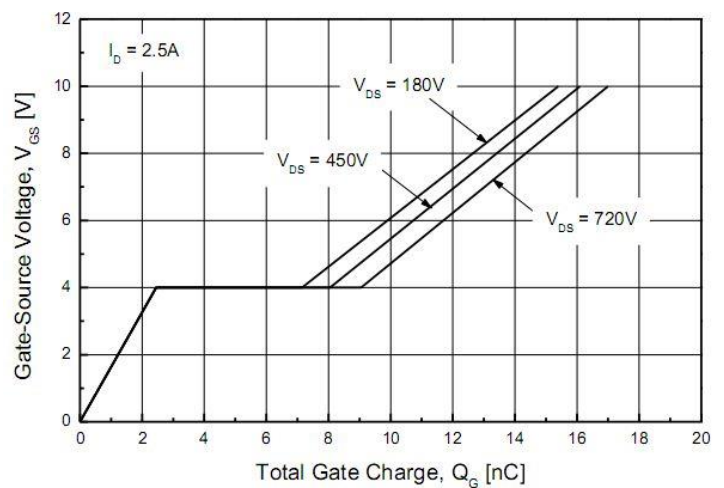
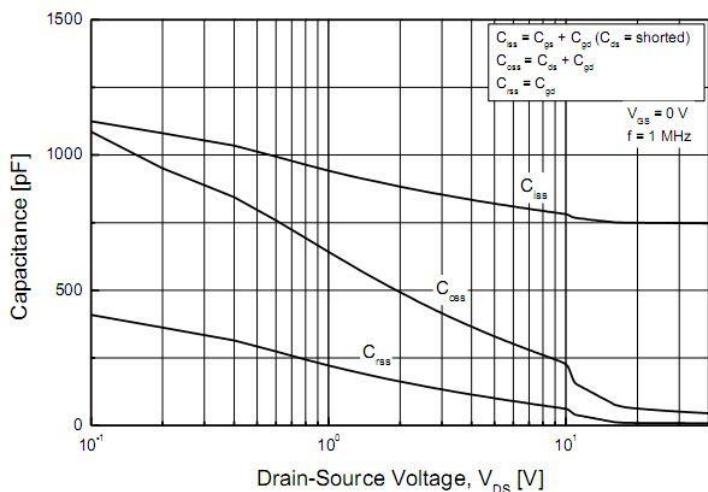
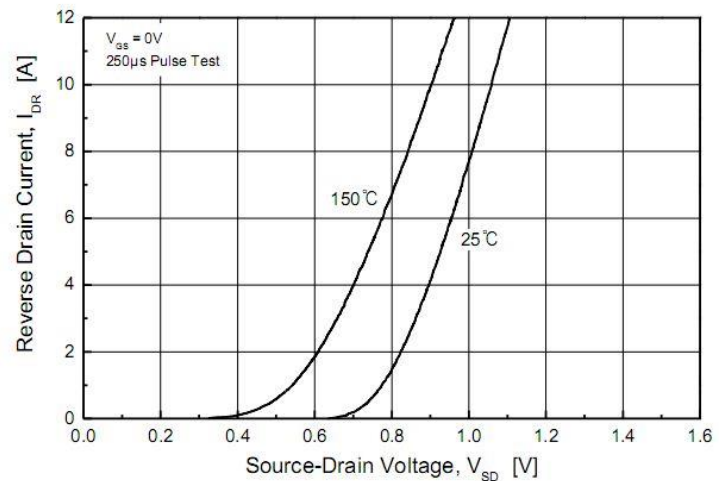
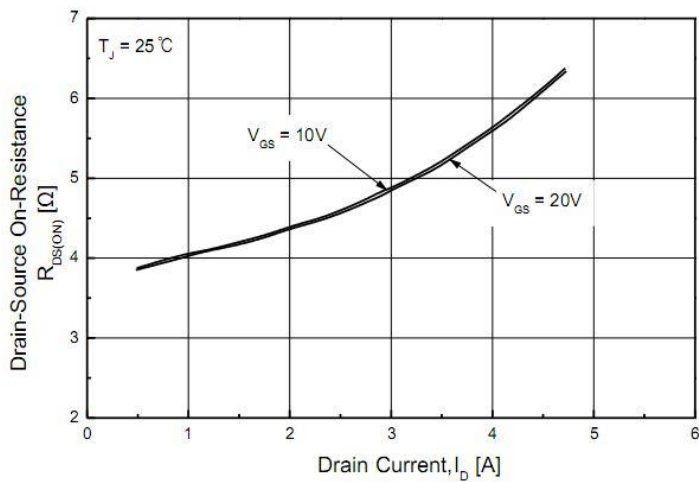
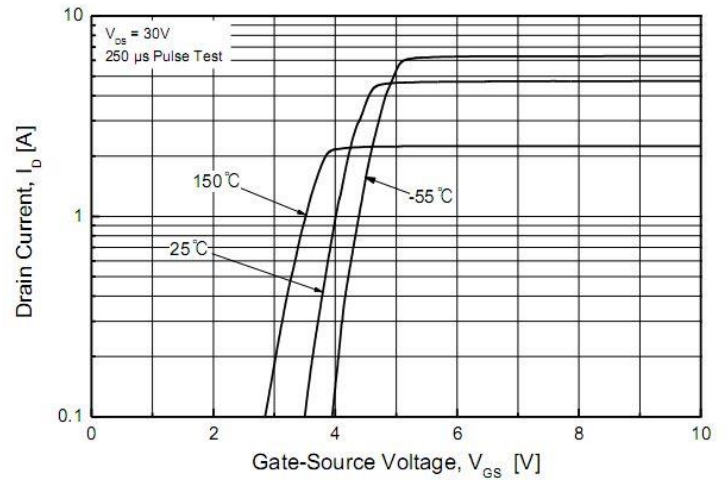
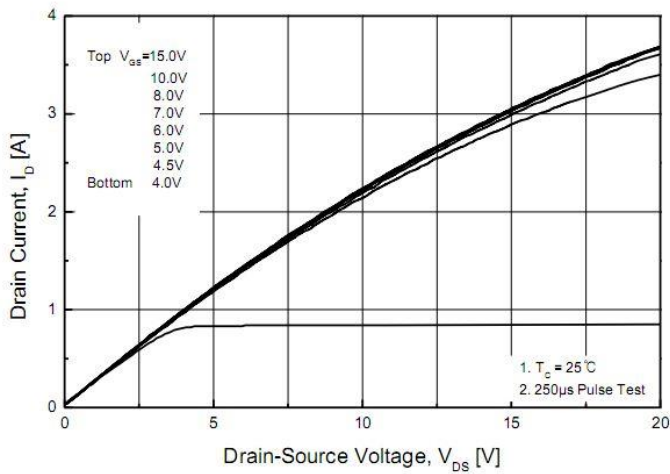
Electrical Characteristics : $T_C=25^\circ\text{C}$, unless otherwise noted

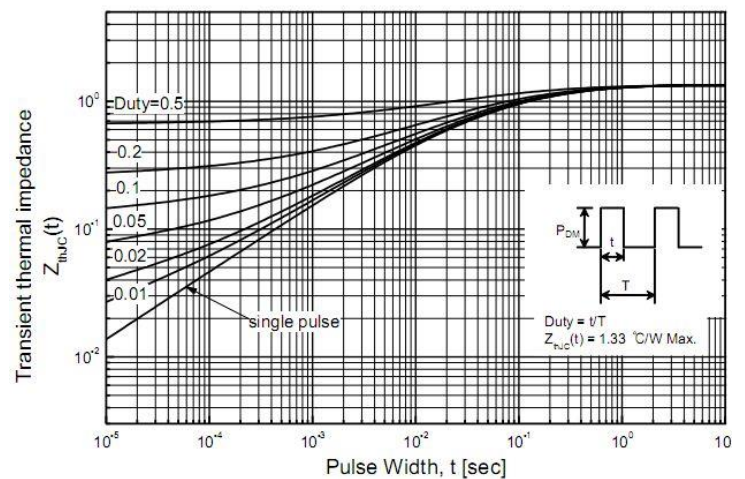
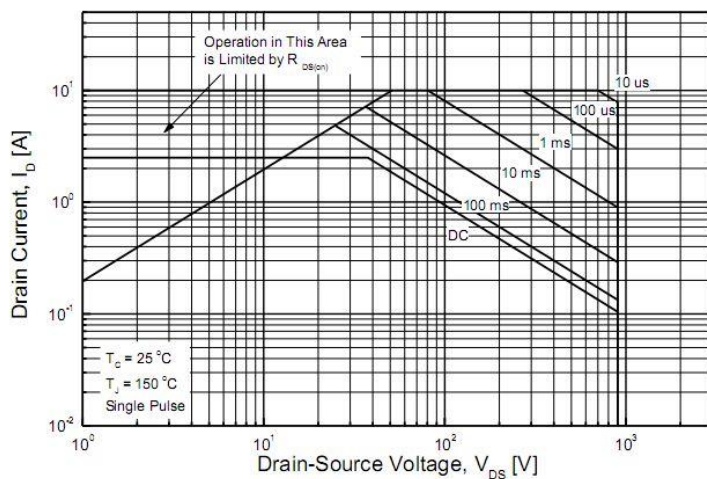
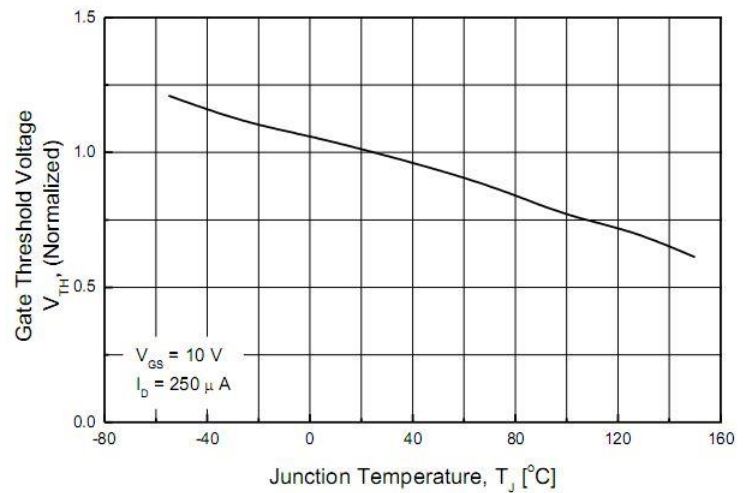
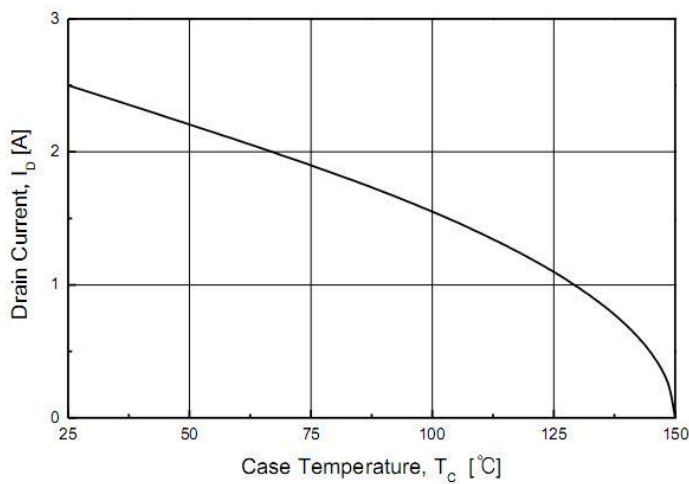
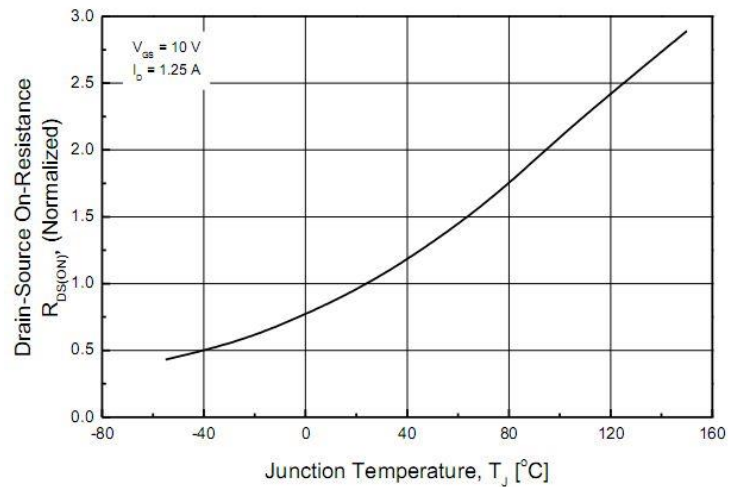
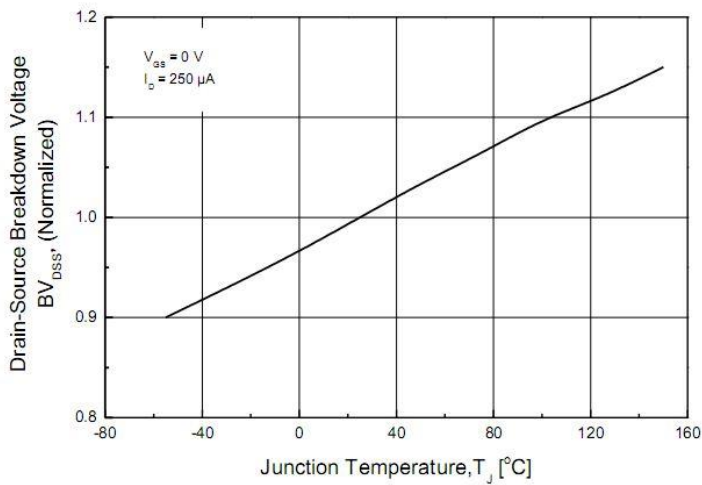
Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250 μA	900	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 900 V, V _{GS} = 0 V	--	--	1	μA
		V _{DS} = 720 V, T _C = 125°C	--	--	10	μA
Forward Gate-Source Leakage Current	I _{GSSF}	V _{GS} = 30 V, V _{DS} = 0 V	--	--	100	nA
Reverse Gate-Source Leakage Current	I _{GSSR}	V _{GS} = -30 V, V _{DS} = 0 V	--	--	-100	nA
ON						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	2	--	4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 1.25 A	--	4.3	5.1	Ω
Forward Transconductance ^(Note 4)	g _{FS}	V _{DS} = 30 V, I _D = 1.25 A	--	3	--	S
DYNAMIC						
Input Capacitance	C _{iSS}	V _{DS} = 25 V, V _{GS} = 0 V, f = 1.0 MHz	--	748	--	pF
Output Capacitance	C _{oSS}		--	55	--	pF
Reverse Transfer Capacitance	C _{rSS}		--	8.7	--	pF
SWITCHING						
Turn-On Delay Time ^(Note 4,5)	t _{d(on)}	V _{DD} = 450 V, I _D = 2.5 A, R _G = 25 Ω	--	16	--	ns
Turn-On Rise Time ^(Note 4,5)	t _r		--	25	--	ns
Turn-Off Delay Time ^(Note 4,5)	t _{d(off)}		--	63	--	ns
Turn-Off Fall Time ^(Note 4,5)	t _f		--	31	--	ns
Total Gate Charge ^(Note 4,5)	Q _g	V _{DS} = 720 V, I _D = 2.5 A, V _{GS} = 10 V	--	17	--	nC
Gate-Source Charge ^(Note 4,5)	Q _{gs}		--	2.4	--	nC
Gate-Drain Charge ^(Note 4,5)	Q _{gd}		--	6.6	--	nC
SOURCE DRAIN DIODE						
Maximum Continuous Drain-Source Diode Forward Current	I _S	----	--	--	2.5	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}	----	--	--	10	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 2.5 A	--	--	1.5	V
Reverse Recovery Time ^(Note 4)	t _{rr}	V _{GS} = 0 V, I _S = 2.5 A dI _F / dt = 100 A/μs	--	355	--	ns
Reverse Recovery Charge ^(Note 4)	Q _{rr}		--	1.8	--	μC

Note :

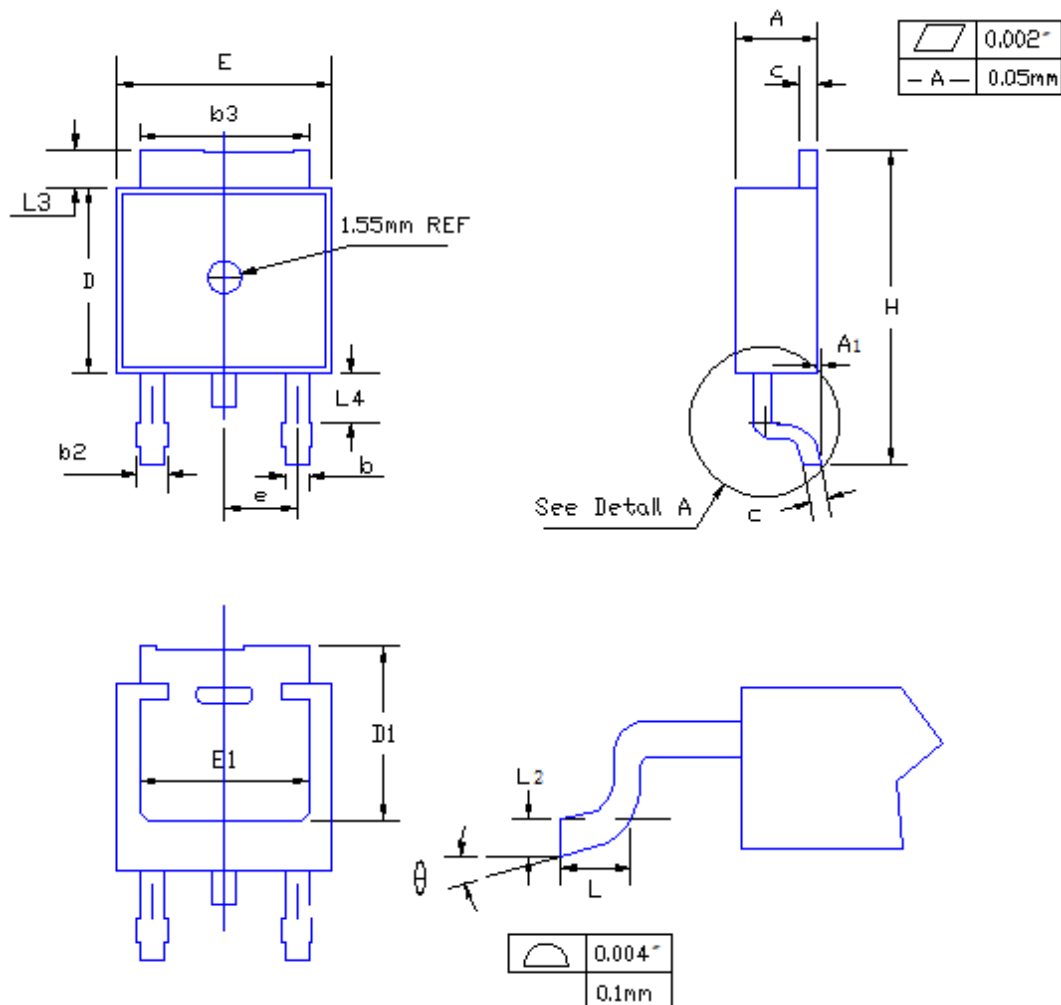
1. Repetitive rating : Pulse width limited by maximum junction temperature
2. $L=5.0\text{mH}, I_{AS} = 2.5\text{A}, V_{DD} = 50\text{V}, R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$
3. $I_{SD} \leq 2.5\text{A}, di/dt \leq 200\text{A}/\mu\text{s}, V_{DD} \leq BV_{DS}$, Starting $T_J = 25^\circ\text{C}$
4. Pulse Test : Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$
5. Essentially Independent of Operating Temperature Typical Characteristics

GP1M003A090C
GP1M003A090PH



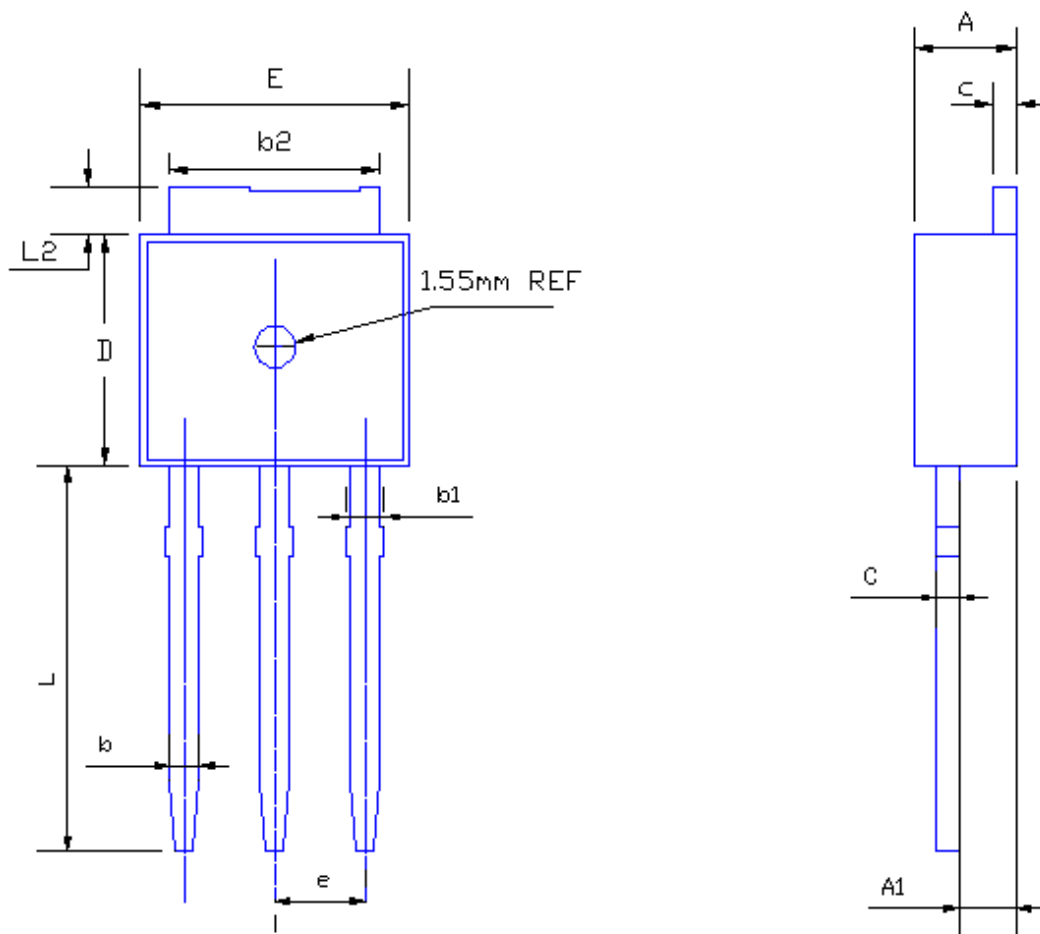


TO-252 (D-PAK) MECHANICAL DATA



SYMBOL	MILLIMETERS	
	MIN	MAX
A	2.19	2.38
A1	—	0.13
b	0.64	0.89
b2	0.84	1.14
b3	5.21	5.46
c	0.46	0.61
D	5.97	6.22
D1	5.21	—
E	6.35	6.73
E1	4.83	—
e	2.29BSC	
H	9.65	10.41
L	1.40	1.78
L2	0.51BSC	
L3	0.89	1.27
L4	0.64	1.01
θ	0	8

TO-251 (I-PAK) MECHANICAL DATA



SYMBOL	MILLIMETERS	
	MIN	MAX
A	2.19	2.38
A1	1.04	1.23
b	0.64	0.89
b1	0.84	1.14
b2	5.23	5.48
c	0.46	0.61
D	5.91	6.28
E	6.21	6.59
e	2.28 TYP	
L	8.89	9.65
L2	0.89	1.27

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