

N-Channel Enhancement Mode MOSFET

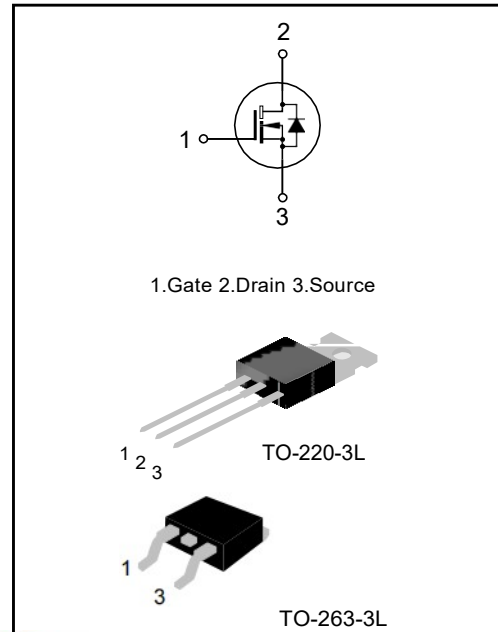
Product Information

Features

- ◆ Surface-mounted package
- ◆ Super Trench
- ◆ Advanced trench cell design Applications
- ◆ LCD TV appliances
- ◆ LCDM appliances
- ◆ High power inverter system

Quick reference

- ◆ $BV \geq 150\text{ V}$ $P_{tot} \leq 156\text{ W}$ $I_D \leq 120\text{ A}$
- ◆ $R_{DS(ON)} \leq 8.8\text{ m}\Omega$ @ $V_{GS} = 10\text{ V}$
- ◆ $R_{DS(ON)} \leq 9.8\text{ m}\Omega$ @ $V_{GS} = 6\text{ V}$



Package Marking and Ordering Information:

Marking	Part #	Package	Packing	Qty.
SR080N15T	SR080N15T	TO-220	Tube	50 units
SR080N15S	SR080N15S	TO-263	Tube	50 units

Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_C = 25\text{ }^\circ\text{C}$	150	-	V
V_{GS}	Gate-Source Voltage	$T_C = 25\text{ }^\circ\text{C}$	-	± 25	V
I_D^*	Drain Current (DC)	$T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	120	A
		$T_C = 100\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	86	A
$I_{DM}^{*,**,***}$	Drain Current (Pulsed)	$T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	240	A
P_{tot}^*	Drain power dissipation	$T_C = 25\text{ }^\circ\text{C}$	-	156	W
T_{stg}	Storage Temperature		-55	150	$^\circ\text{C}$
T_J	Junction Temperature		-	150	$^\circ\text{C}$
I_S	Continuous-Source Current	$T_C = 25\text{ }^\circ\text{C}$	-	120	A
E_{AS}^*	Single Pulsed Avalanche Energy	$V_{DD} = 50\text{ V}, L = 1\text{ mH}$	-	684	mJ
$R_{\theta JA}^*$	Thermal Resistance- Junction to Ambient		-	62.5	$^\circ\text{C/W}$
$R_{\theta JC}^*$	Thermal Resistance- Junction to Case		-	0.8	

Notes :

* Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$

** Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

*** Limited by bonding wire

Electrical Characteristics

(TA=25 ° Unless Otherwise Noted)

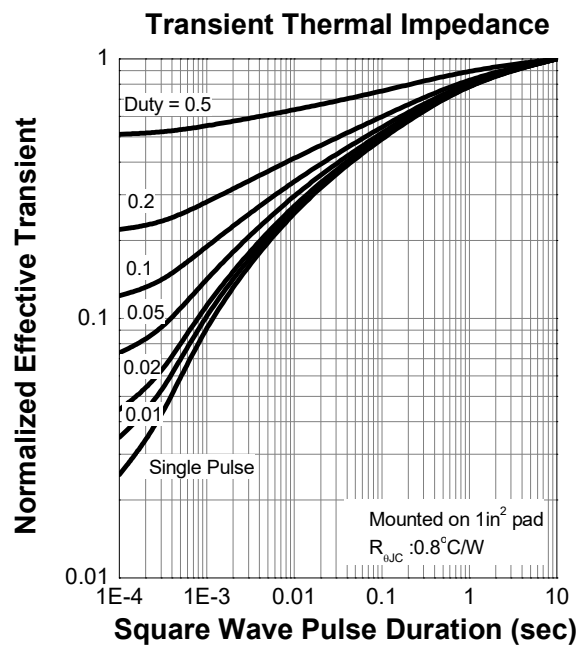
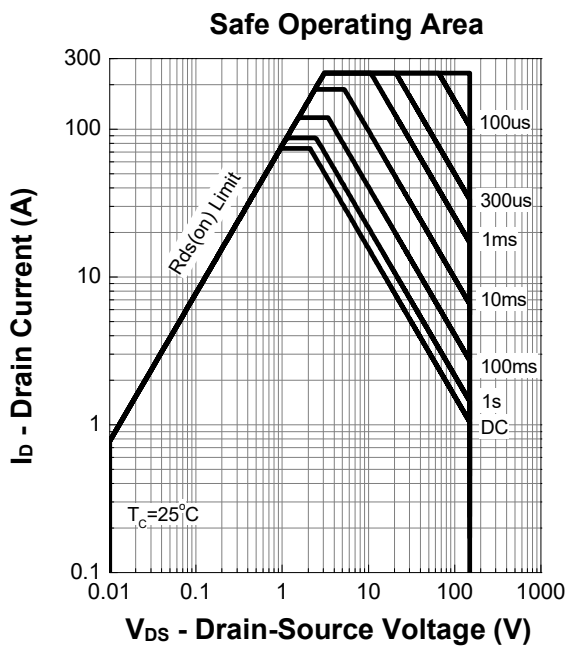
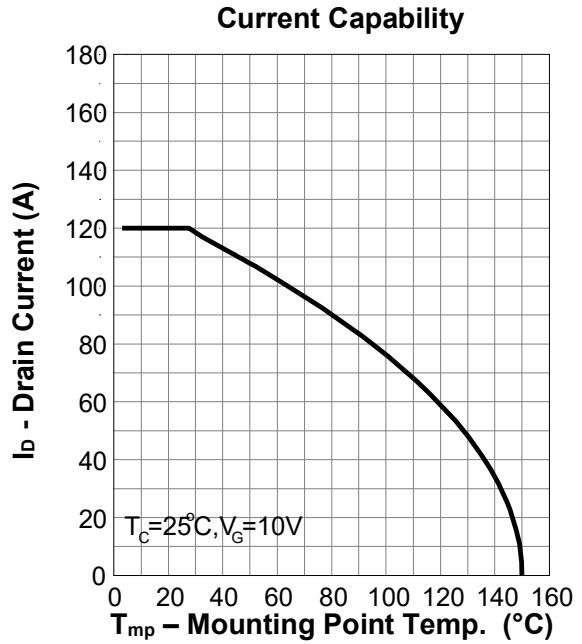
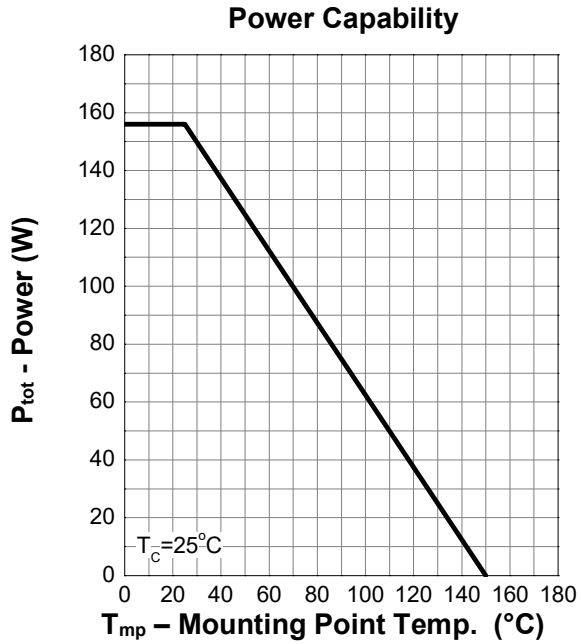
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = 250\ \mu\text{A}$	150	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\ \mu\text{A}$	2	-	4	V
I_{DSS}	Drain Leakage Current	$V_{DS} = 120\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	μA
I_{GSS}	Gate Leakage Current	$V_{GS} = 0\text{ V}, V_{GS} = \pm 25\text{ V}$	-	-	± 100	nA
$R_{DS(ON)}^a$	On-State Resistance	$V_{GS} = 10\text{ V}, I_{DS} = 30\text{ A}$	-	8.3	8.8	m Ω
		$V_{GS} = 6\text{ V}, I_{DS} = 20\text{ A}$	-	9.3	9.8	
Diode Characteristics						
V_{SD}^a	Diode Forward Voltage	$I_{SD} = 30\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.3	V
t_{rr}	Reverse Recovery Time	$I_{DS} = 30\text{ A}, dI_{SD}/dt = 100\text{ A}/\mu\text{s}$	-	96	-	nS
Q_{rr}	Reverse Recovery Charge		-	355	-	nC
Dynamic Characteristics ^b						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 75\text{ V}$ Frequency = 1 MHz	-	4756	-	pF
C_{oss}	Output Capacitance		-	318	-	
C_{riss}	Reverse Transfer Capacitance		-	65	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = 75\text{ V}, V_{GEN} = 10\text{ V},$ $R_G = 3.9\ \Omega, R_L = 2.5\ \Omega,$ $I_{DS} = 30\text{ A}$	-	19	-	nS
t_r	Turn-on Rise Time		-	69	-	
$t_d(off)$	Turn-off Delay Time		-	55	-	
t_f	Turn-off Fall Time		-	80	-	
Gate Charge Characteristics ^b						
Q_g	Total Gate Charge	$V_{DS} = 75\text{ V}, V_{GS} = 10\text{ V},$ $I_{DS} = 30\text{ A}$	-	81	-	nC
Q_{gs}	Gate-Source Charge		-	27	-	
Q_{gd}	Gate-Drain Charge		-	17	-	

Notes :

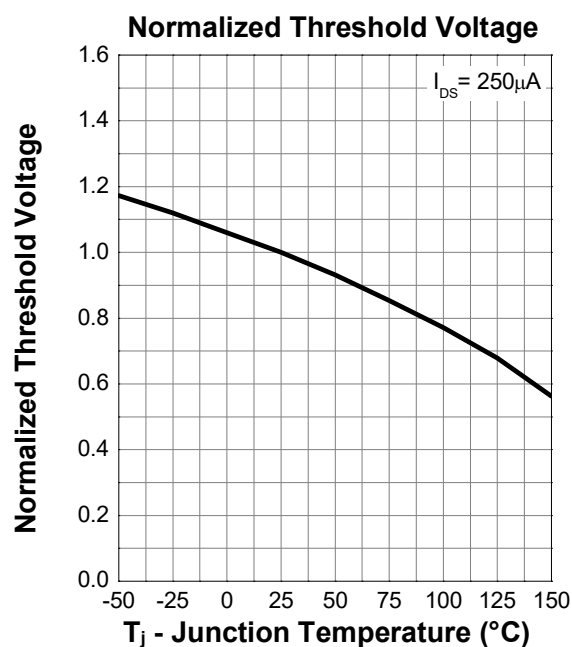
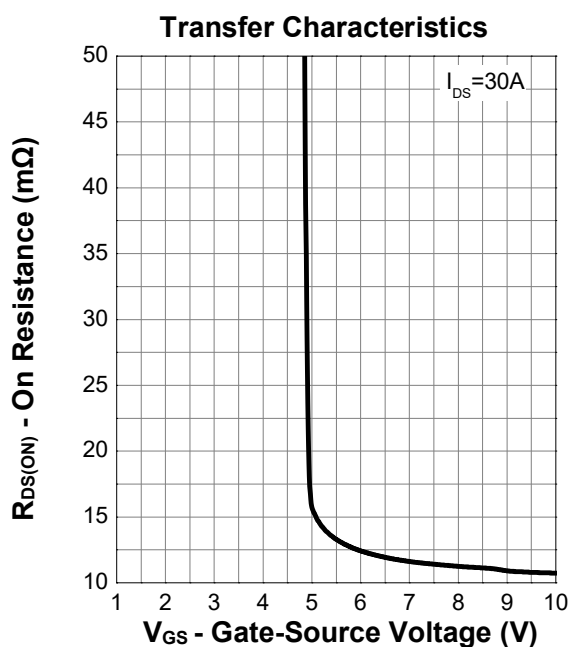
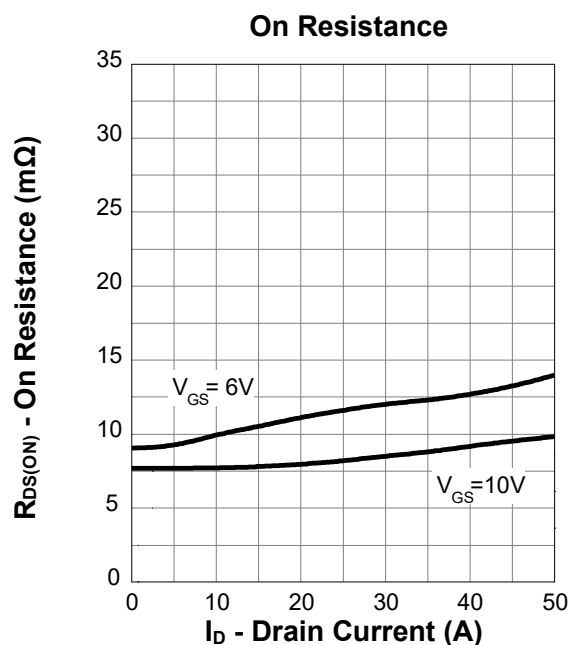
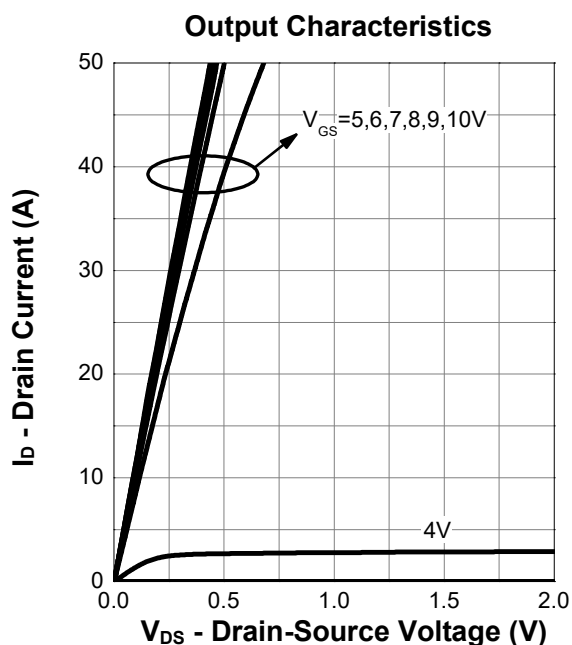
a : Pulse test ; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

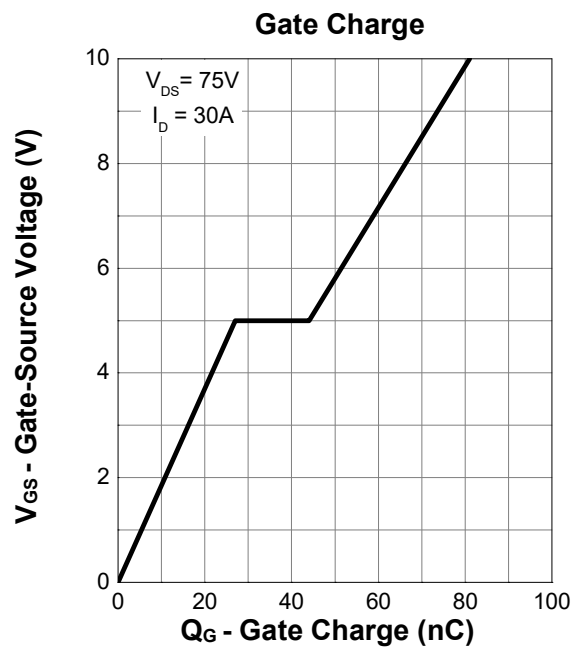
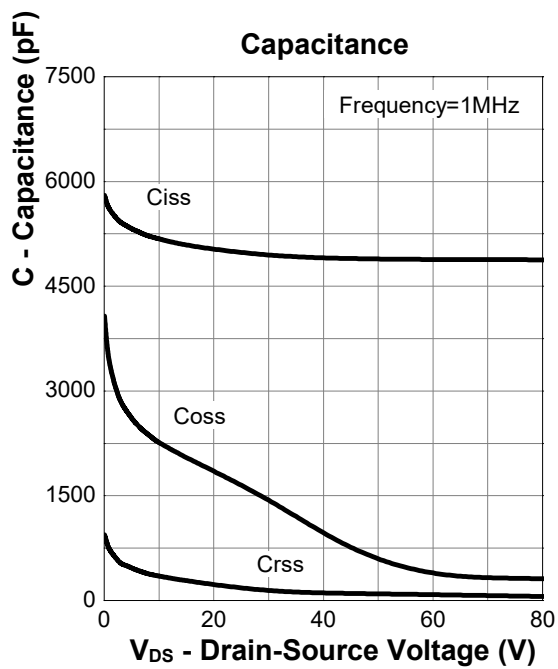
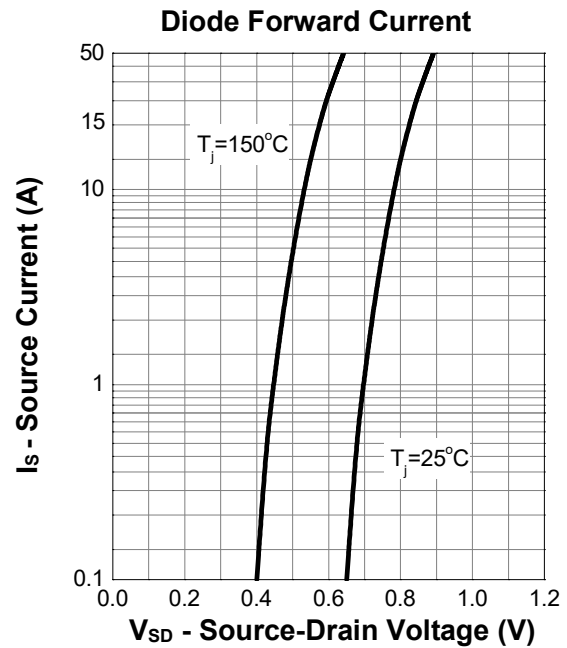
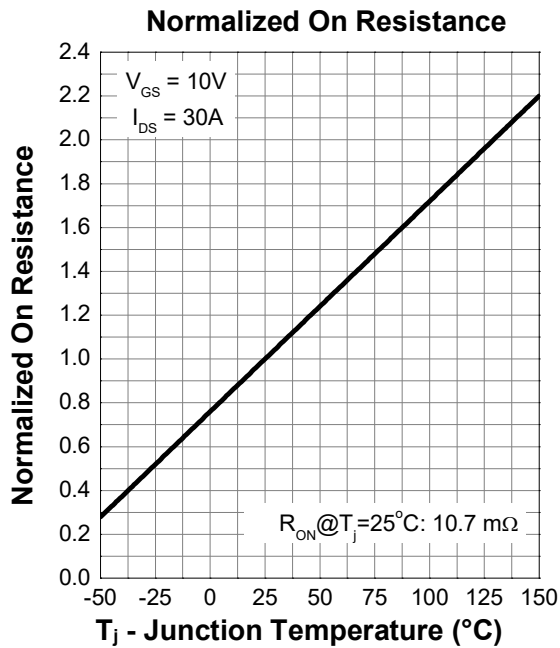
Typical Characteristics



Typical Characteristics (cont.)

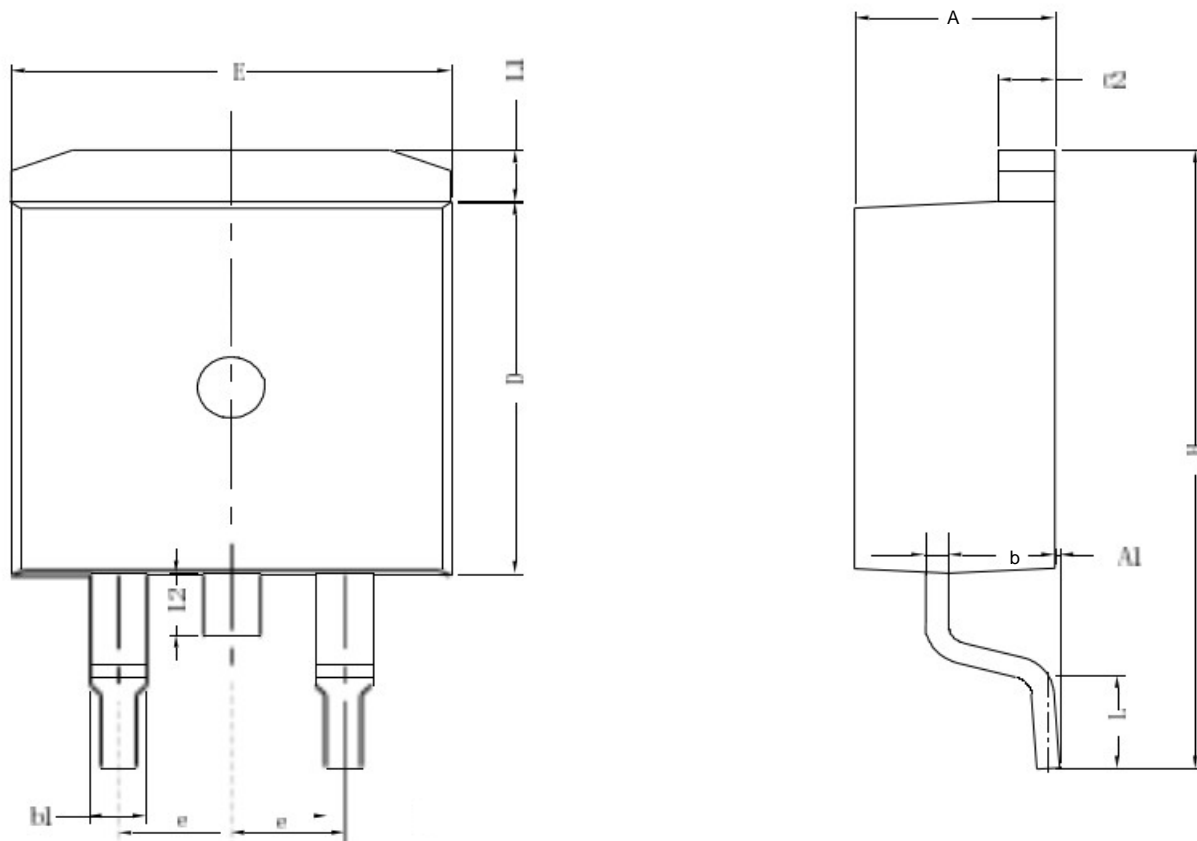


Typical Characteristics (cont.)



Package Dimensions

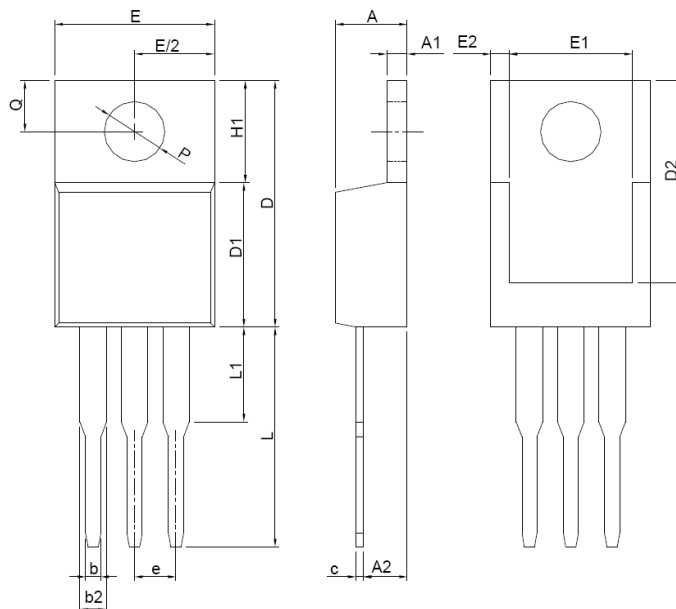
TO-263-3L



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	4.3	4.72
A1	0	1.0
b	0.71	0.91
b2	0.30	0.60
C	1.17	1.37
D	8.5	9.35
E	9.8	10.45
E1	6.86	8.89
e	2.54BSC	
H1	14.7	15.75
L	2	2.74
L1	1.12	1.42
L2		1.75

Package Dimensions

TO-220-3L



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	3.56	4.83
A1	0.51	1.40
A2	2.03	2.92
b	0.38	1.02
b2	1.14	1.78
c	0.36	0.61
D	14.22	16.51
D1	8.38	9.02
D2	12.19	12.88
E	9.65	10.67
E1	6.86	8.89
E2	0.76BSC	
e	2.54BSC	
H1	5.84	6.86
L	12.70	14.73
L1	6.35BSC	
P	3.53	4.09
Q	2.54	3.43