

P-Channel Enhancement Mode MOSFET

:YUhi fY'

D]b`8YgWf]dh]cb

- -30V/-90A
R_{DS(ON)} = 4.4mΩ (typ.) @V_{GS} = -10V
R_{DS(ON)} = 7.4mΩ (typ.) @V_{GS}

<M ; \$()D\$' @E%` 8# I#J

5Vgc` ihY` AUI]a i a `FUh]b [g`

Gma Vc`	DUfU a YhYf`		FUh]b [`	I b]h`
7c a a cb`FUh]b [g` (Tc=25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		-30	V
V _{GSS}	Gate-Source Voltage		±20	V
T _J	Junction Temperature Range		-55 to 175	°C
T _{STG}	Storage Temperature Range		-55 to 175	°C
I _s	Drain Current-Continuous	Tc=25°C	-90	A
Ac i bhYX`cb`@Uf [Y` <YUh`G]b_`				
I _{DM}	Pulsed Drain Current *	Tc=25°C	-360	A
I _D	Continuous Drain Current	Tc=25°C	-90	A
		Tc=100°C	-63.5	A
P _D	Maximum Power Dissipation	Tc=25°C	60	W
		Tc=100°C	30	W
R _{θJC}	Thermal Resistance, Junction-to-Case		2.5	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient **		110	°C/W
E _{AS}	SinglePulsed-Avalanche Energy ***	L=0.3mH	273***	mJ

Note: * Repetitive rating; pulse width limited by max junction temperature.
 ** Surface mounted on FR-4 board.
 *** Limited by T_{Jmax} , starting T_J=25°C , L = 0.3mH, R_G= 25Ω, V_{GS} = -10V.

9`YWhf]WU` 7 \UfUWhYf]gh]Wg` (Tc =25°C Unless Otherwise Noted)

Gma Vc`	DUfU a YhYf`	HYgh` 7 cbX]h]cbg`	<M ; \$()D\$' @E%`			I b]h`
			A]b`	Hmd`	AUI`	
GhUh]W` 7 \UfUWhYf]gh]Wg`						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250uA	-30	-	-	V
I _{DSS}	Drain-to-Source Leakage Current	V _{DS} =-30V, V _{GS} =0V	-	-	-1	uA
		T _J =125°C	-	-	-50	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250uA	-1.0	-1.2	-3.0	V
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)*}	Drain-Source On-state Resistance	V _{GS} =-10V, I _D = -20A	2	4.4	5.5	mΩ
		V _{GS} =-4.5V, I _D = -20A	3	7.4	9.5	mΩ
8]cXY` 7 \UfUWhYf]gh]Wg`						
V _{SD*}	Diode Forward Voltage	I _{SD} = -20A, V _{GS} =0V	-	-0.82	-1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} = -20A, dI/dt=100A/us	-	26	-	ns
Q _{rr}	Reverse Recovery Charge		-	22	-	nC

<M ; \$() D\$' @ E% ' 8# I #J

9`YWhf]WU` 7 \UfUWhYf]gh]Wg`fl7 cbh"L` (Tc =25°C Unless Otherwise Noted)

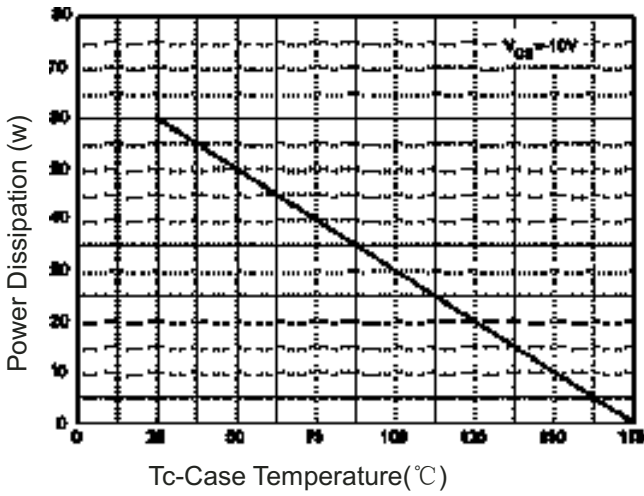
Gma Vc`	DUfU a YhYf	HYgh` 7 cbX]h]cbg`	<M ; \$() D\$' @ E% '			I b]h
			A]b`	Hmd`	AUI`	
8mbU a]W` 7 \UfUWhYf]gh]Wg`						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	5.2	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-25V, Frequency=1.0MHz	-	7660	-	pF
C _{oss}	Output Capacitance		-	649	-	
C _{rss}	Reverse Transfer Capacitance		-	575	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} = -20V, R _G =3Ω, I _{DS} = -20A, V _{GS} =-10V	-	24	-	ns
T _r	Turn-on Rise Time		-	19	-	
t _{d(OFF)}	Turn-off Delay Time		-	75	-	
T _f	Turn-off Fall Time		-	33	-	
; UhY` 7 \Uf [Y` 7 \UfUWhYf]gh]Wg`						
Q _g	Total Gate Charge	V _{DS} = -24V, V _{GS} = -10V, I _D = -20A,	-	135.5	-	nC
Q _{gs}	Gate-Source Charge		-	12.5	-	
Q _{gd}	Gate-Drain Charge		-	29.7	-	

Note: *Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%

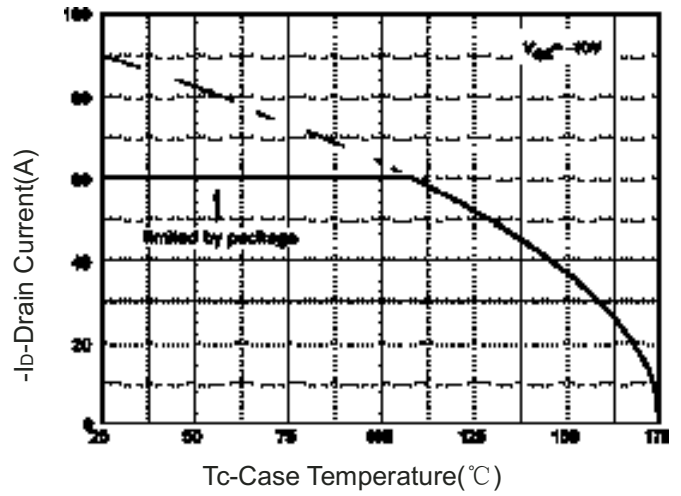
<M ; \$()D\$' @E% '8# I#J

Hmd]WU` CdYfUh]b ['7 \UfUWhYf]gh]Wg`

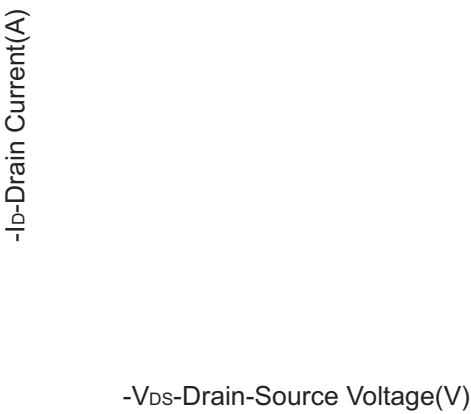
:][i fY% . 'DckYf'8]gg]dUh]cb`



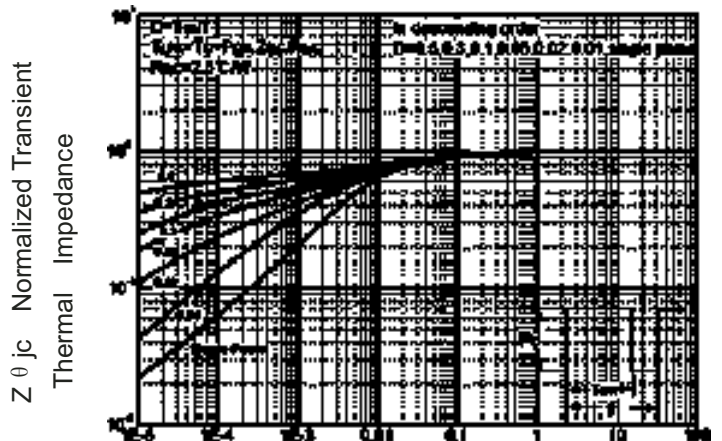
:][i fY' & . '8fU]b'7 i ffYbh`



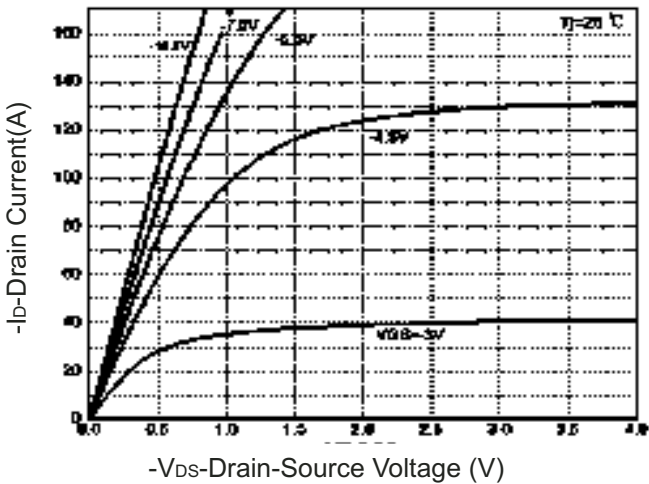
:][i fY' . 'GUZY' CdYfUh]cb' 5fYU`



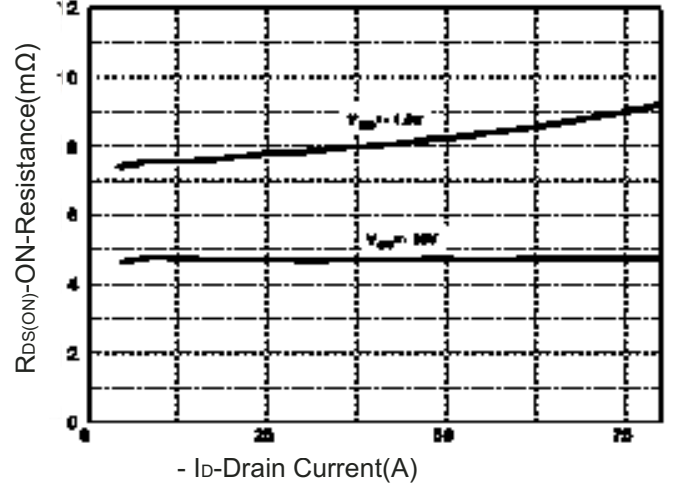
:][i fY' (. 'H \Yf a U` HfUbg]Ybh' = a dYXUbWY`



:][i fY') . 'C i hdi h'7 \UfUWhYf]gh]Wg`



:][i fY' * . '8fU]b!Gc i fWY'Cb' FYa]ahUbWY`



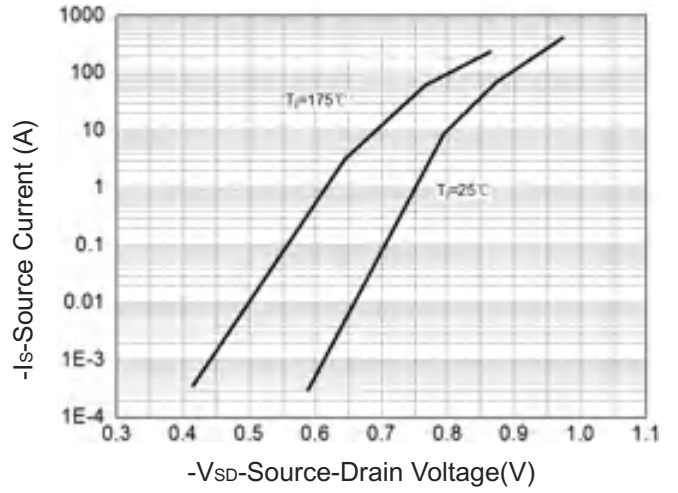
<M ; \$() D \$ ' @ E % ' 8 # I # J

Hmd]WU` `CdYfUh]b [`7 \UfUWhYf]gh]Wgfl7cbh"l`

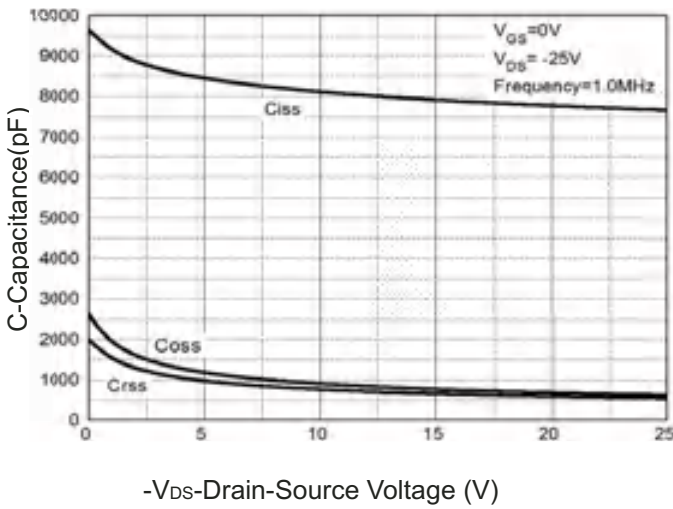
:][i fY'+. `Cb!FYg]ghUbWY' jg" HY a dYfUh i fY' ` ` :][i fY' ,. `Gc i fWY!8fU]b'8]cXY' :cfkUfX`

Normalized On-Resistance

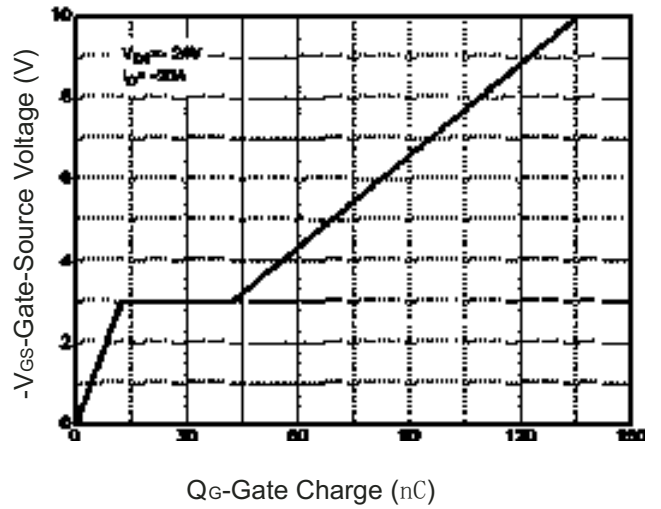
T_j-Junction Temperature (°C)



:][i fY' -. `7UdUW]hUbWY' 7 \UfUWhYf]gh]Wg`

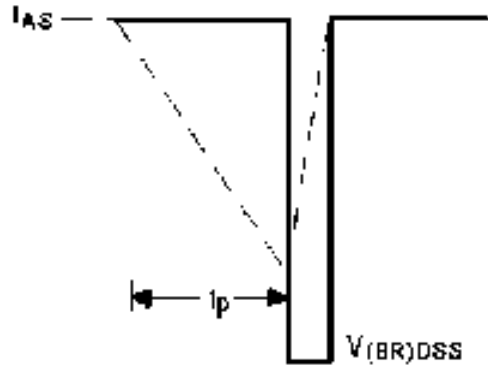
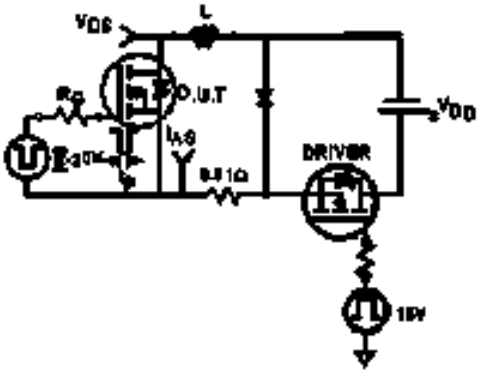


:][i fY' % \$. ; U h Y ' 7 \ U f [Y ' 7 \ U f U W h Y f] g h] W g `

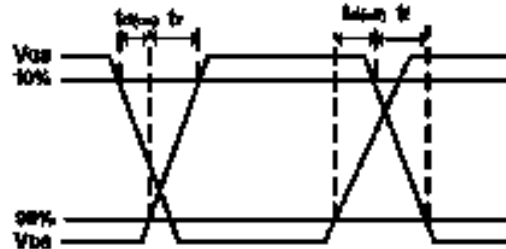
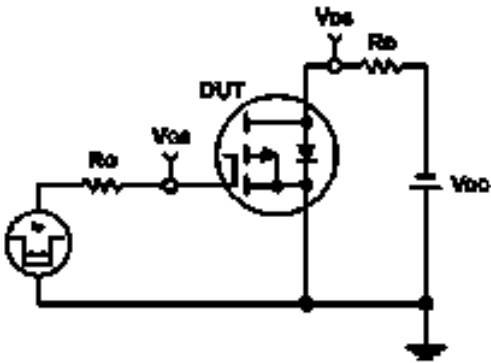


<M ; \$() D \$ ' @ E % ' 8 # I # J

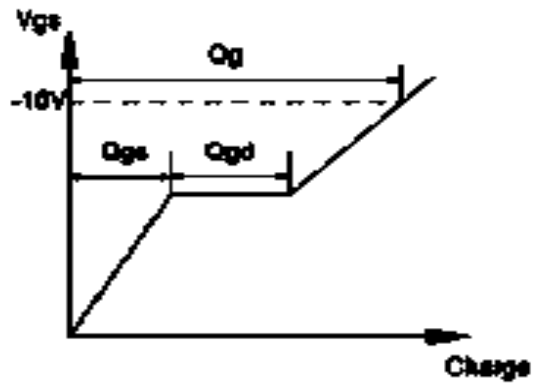
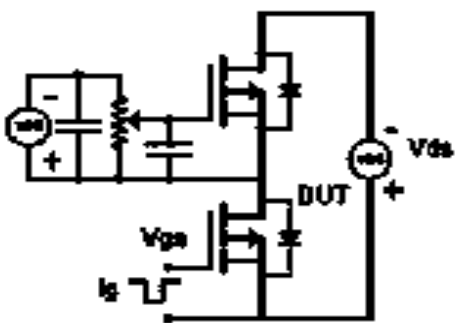
5 j U ` U b W \ Y ` H Y g h ' 7] f W i] h `



G k] h W \] b [` H] a Y ` H Y g h ' 7] f W i] h `



; U h Y ' 7 \ U f [Y ` H Y g h ' 7] f W i] h `



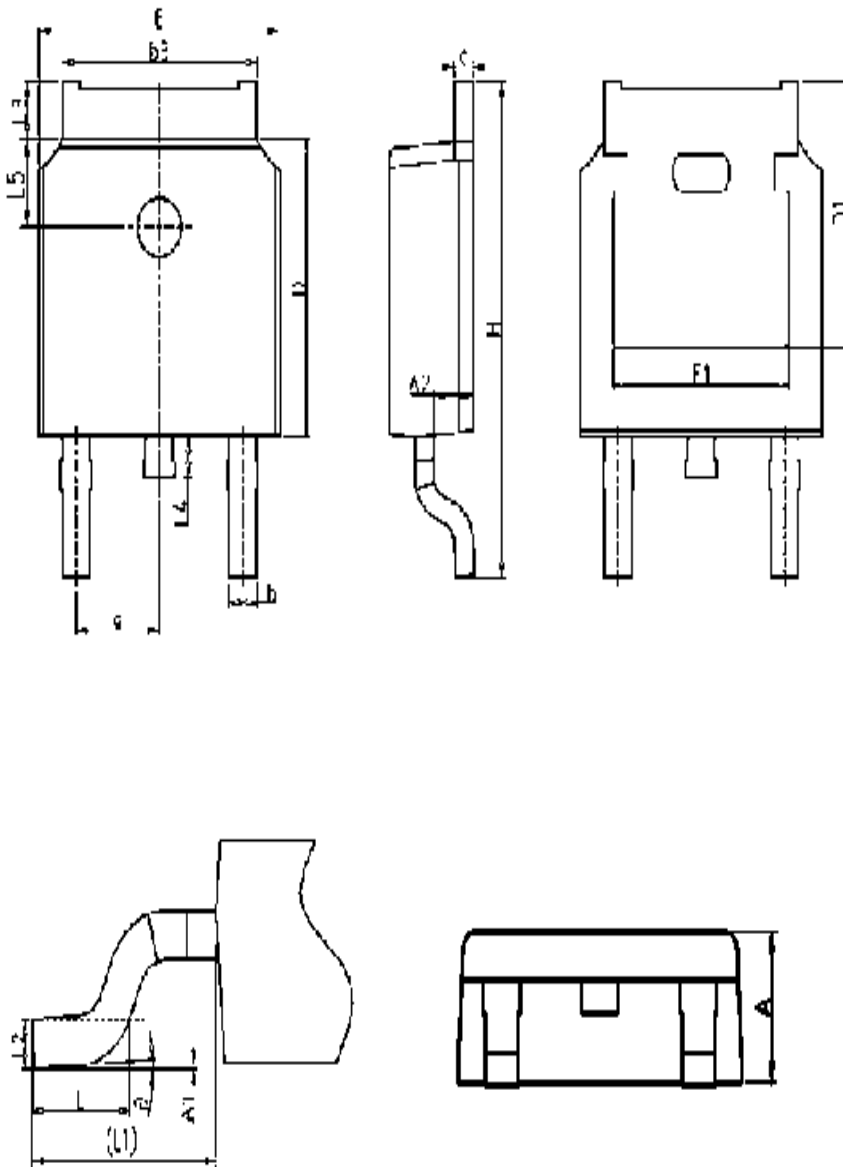
<M ; \$()D\$' @E%`8#I#J

Device Per Unit

Package Type	Unit	Quantity
TO-252-2L	Tube	75
TO-252-2L	Reel	2500
TO-251-3L	Tube	75
TO-251-3S	Tube	75

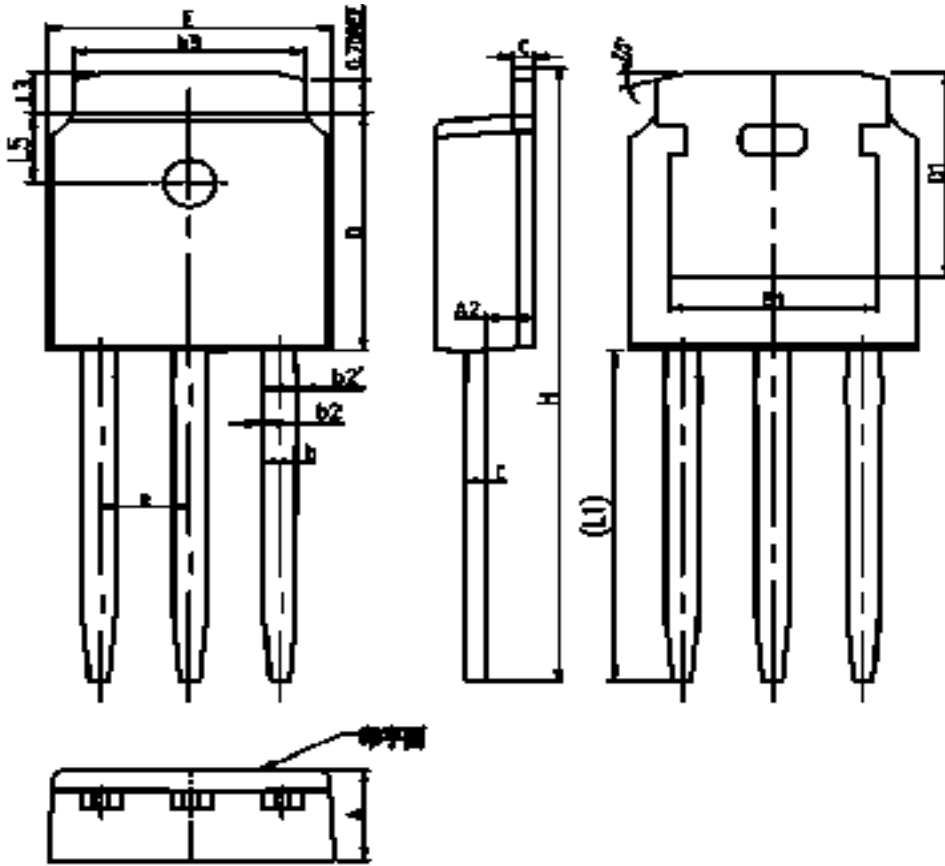
DUW_U [Y`=bZcf a Uh]cb`

HC!&)&!&@



COMMON DIMENSIONS

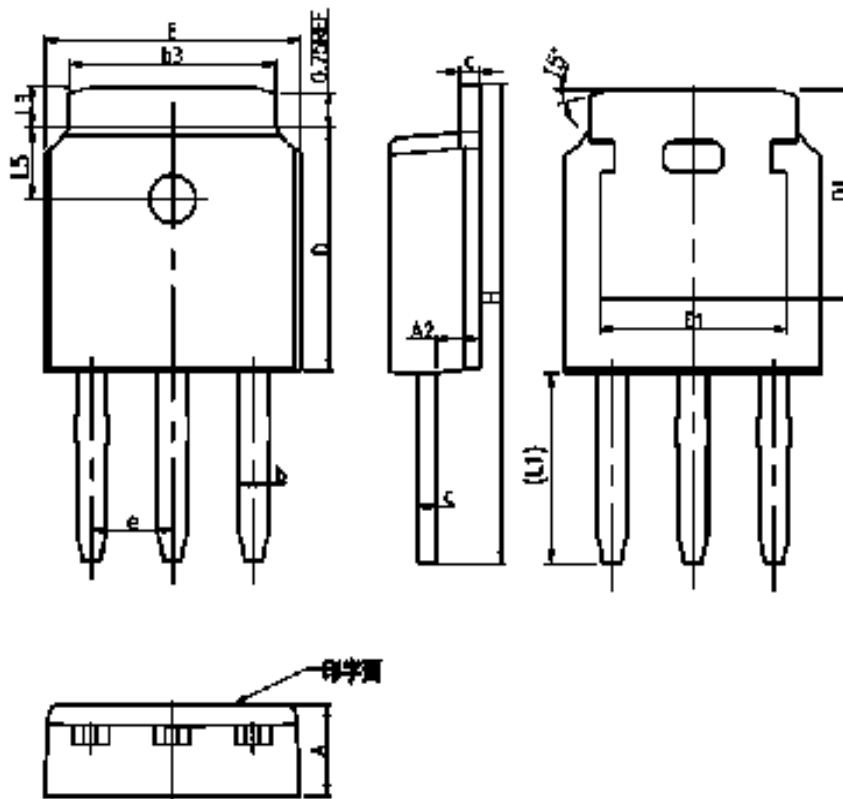
SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.40
A1	0.00	-	0.20
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b3	5.20	5.33	5.50
c	0.43	0.53	0.63
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	-	-
e	2.286BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90REF		
L2	0.51BSC		
L3	0.88	-	1.28
L4	-	-	1.00
L5	1.65	1.80	1.95
θ	0°	-	8°



COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.40
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b2	0.00	0.04	0.10
b2'	0.00	0.04	0.10
b3	5.20	5.33	5.50
c	0.43	0.53	0.63
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	-	-
e	2.286BSC		
H	16.22	16.52	16.82
L1	9.15	9.40	9.65
L3	0.88	1.02	1.28
L5	1.65	1.80	1.95

HC!&)%!'G`



COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.40
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b3	5.20	5.33	5.50
c	0.43	0.53	0.63
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	-	-
e	2.286BSC		
H	10.00	11.22	11.44
L1	3.90	4.10	4.30
L3	0.88	1.02	1.28
L5	1.65	1.80	1.95

<M ; \$()D\$' @E%`8#I#J

7`Ugg]Z]WUh]cb`DfcZ]`Y`

7`Ugg]Z]WUh]cb`FYZ`c k`DfcZ]`Yg`

Table 1. SnPb Eutectic Process – Classification Temperatures (Tc)

DUW_U[Y' H\]W_bYgg'	Jc`i aY`a a ^{3`} 0')\$'	Jc`i aY`a a ^{3`} ≥')\$'
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2. Pb-free Process – Classification Temperatures (Tc)

DUW_U[Y' H\]W_bYgg'	Jc`i aY`a a ^{3`} 0')\$'	Jc`i aY`a a ^{3`})!&\$\$\$	Jc`i aY`a a ^{3`} ≥&\$\$\$'
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm – 2.5 mm	260 °C	250 °C	245 °C
≥2.5 mm	250 °C	245 °C	245 °C

FY]UV]`]hm`HYgh`Dfc [fUa

HYgh`]hYa`	AYh`cX	8YgWf]dh]cb
SOLDERABILITY	JESD-22, B102	5 Sec, 245°C
HOLT	JESD-22, A108	168 Hrs /500 Hrs /1000 Hrs, Bias @ 150°C
PCT	JESD-22, A102	96 Hrs, 100%RH, 2atm, 121°C
TCT	JESD-22, A104	500 Cycles, -55°C~150°C

7 ighc aYf`GYf j]WY

Worldwide Sales and Service: sales@hymexa.com

Technical Support: Technology@hymexa.com

Huayi Microelectronics Co., Ltd.

No.8928, Shangji Road, Economic and Technological Development Zone, Xi'an, China

TEL: (86-029) 86685706

FAX: (86-029) 86685705

E-mail: sales@hymexa.com

Web net: www.hymexa.com