

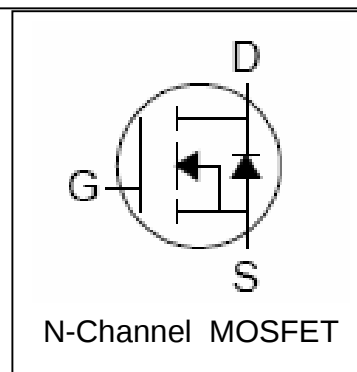
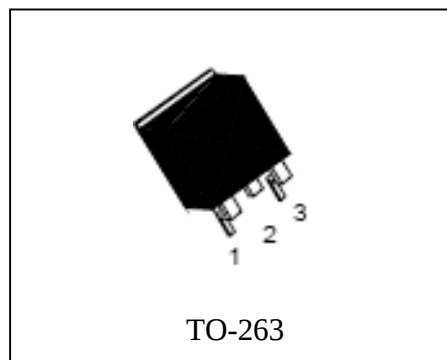
Features

- 80V/48A,
 $R_{DS(ON)} = 13m\Omega(tpy.) @ V_{GS} = 10V$
- Super High Dense Cell Design
- 100% avalanche tested
- Lead Free and Green Devices Available
(RoHS Compliant)

Applications

- DC-DC Converters and Off-line UPS
- Automotive Load Control
- Electronic Power Steering System

Pin Description



Absolute Maximum Ratings

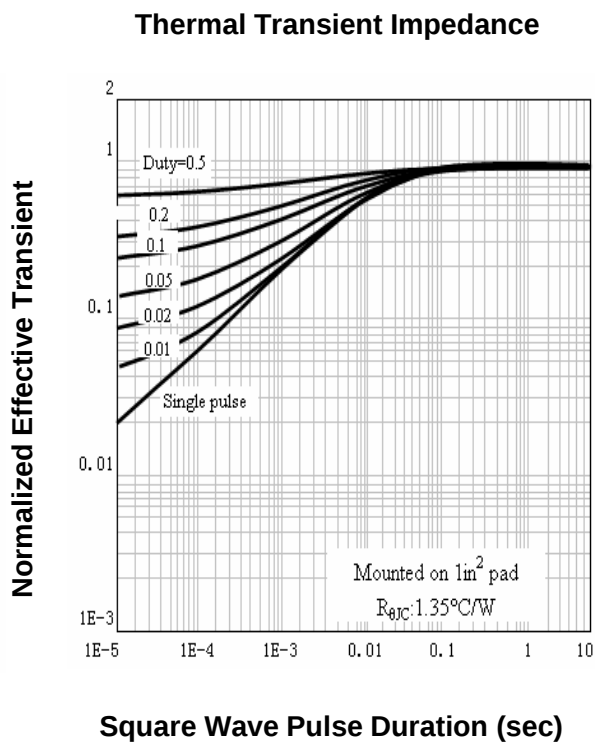
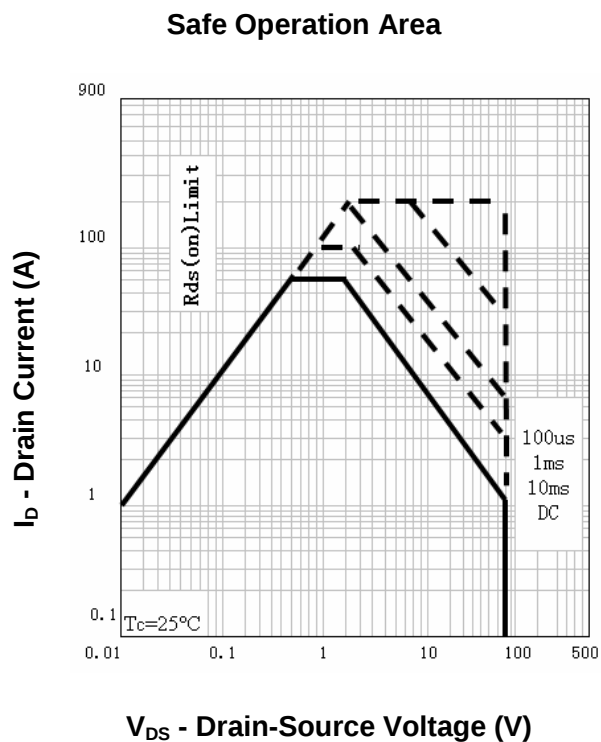
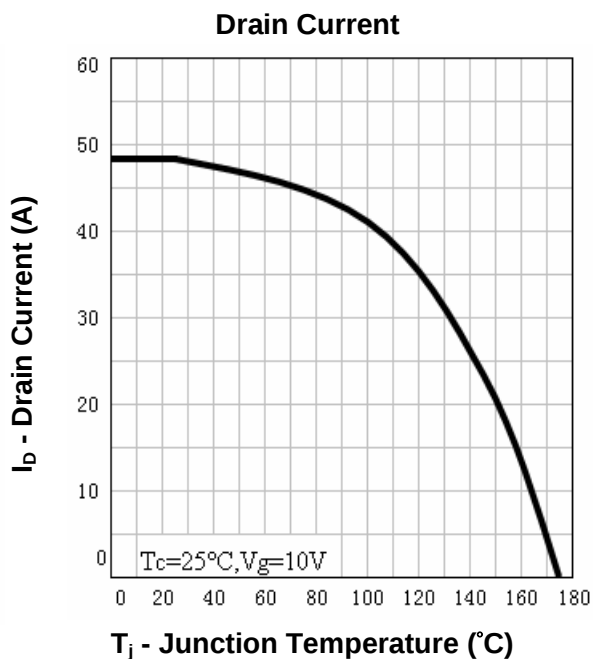
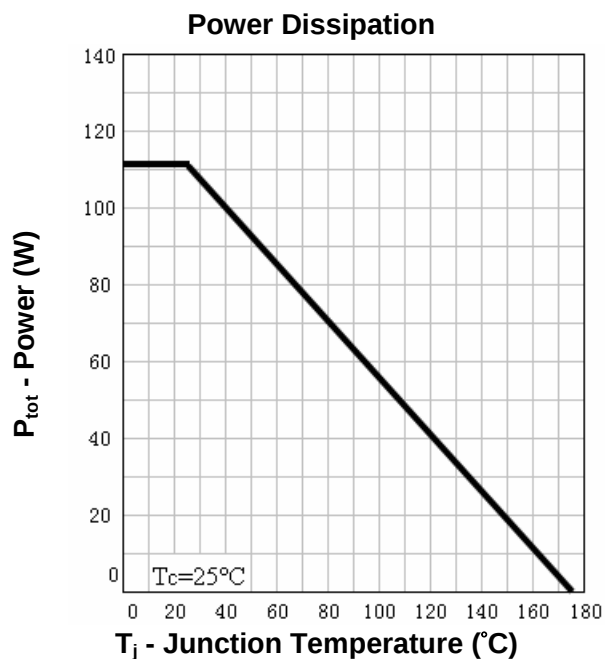
Symbol	Parameter		Rating	Unit
Common Ratings (T _A =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		80	V
V _{GSS}	Gate-Source Voltage		±25	
T _J	Maximum Junction Temperature		175	°C
T _{STG}	Storage Temperature Range		-55 to 175	°C
I _S	Diode Continuous Forward Current	T _C =25°C	48	A
Mounted on Large Heat Sink				
I _{DP}	300μs Pulse Drain Current Tested	T _C =25°C	192 ^①	A
I _D	Continuous Drain Current	T _C =25°C	48 ^②	A
		T _C =100°C	41	
P _D	Maximum Power Dissipation	T _C =25°C	111	W
		T _C =100°C	56	W
R _{θJC}	Thermal Resistance-Junction to Case		1.35	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^③	Avalanche Energy, Single Pulsed		330	mJ

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU8048S			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	80			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V, V _{GS} =0V			1	μA
		T _J =85°C			10	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V			±100	nA
R _{DS(ON)} ^④	Drain-Source On-state Resistance	V _{GS} = 10V, I _{DS} =30A		13	16	mΩ
Diode Characteristics						
V _{SD} ^④	Diode Forward Voltage	I _{SD} =30A, V _{GS} =0V		0.8	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =30A, dI _{SD} /dt=100A/μs		34		ns
Q _{rr}	Reverse Recovery Charge			29		nC
Dynamic Characteristics ^⑤						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		1.8		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} = 35V, Frequency=1.0MHz		1872		pF
C _{oss}	Output Capacitance			281		
C _{rss}	Reverse Transfer Capacitance			92		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =40V, R _L =30Ω, I _{DS} =30A, V _{GEN} = 10V, R _G =4.7Ω		11		ns
t _r	Turn-on Rise Time			54		
t _{d(OFF)}	Turn-off Delay Time			30		
t _f	Turn-off Fall Time			22		
Gate Charge Characteristics ^⑤						
Q _g	Total Gate Charge	V _{DS} =64V, V _{GS} = 10V, I _{DS} =30A		36		nC
Q _{gs}	Gate-Source Charge			10		
Q _{gd}	Gate-Drain Charge			9		

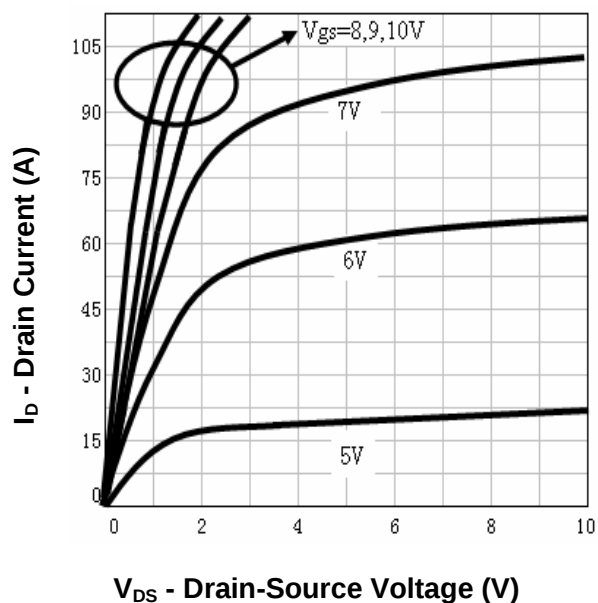
- Notes: ①Pulse width limited by safe operating area.
 ②Calculated continuous current based on maximum allowable junction temperature.
 ③Limited by T_{Jmax}, I_{AS} =23A, V_{DD} = 48V, R_G = 50Ω , Starting T_J = 25°C.
 ④Pulse test ; Pulse width≤300μs, duty cycle≤2%.
 ⑤Guaranteed by design, not subject to production testing.

Typical Characteristics

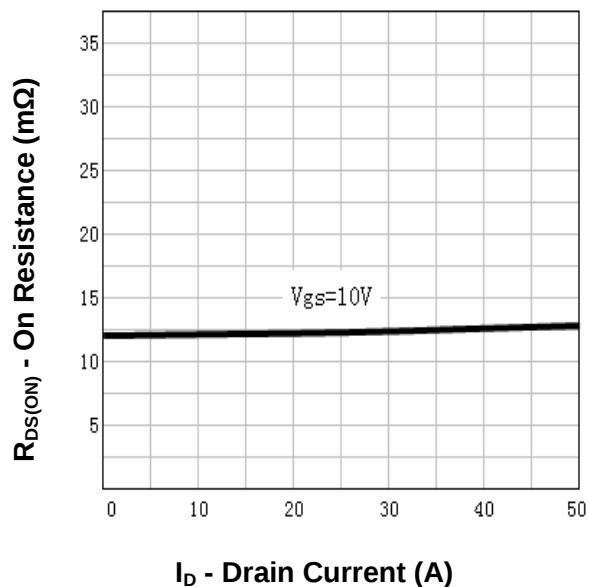


Typical Characteristics

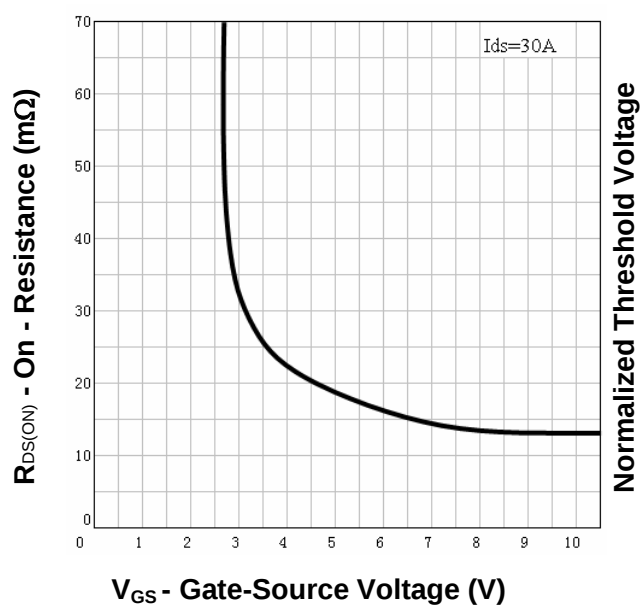
Output Characteristics



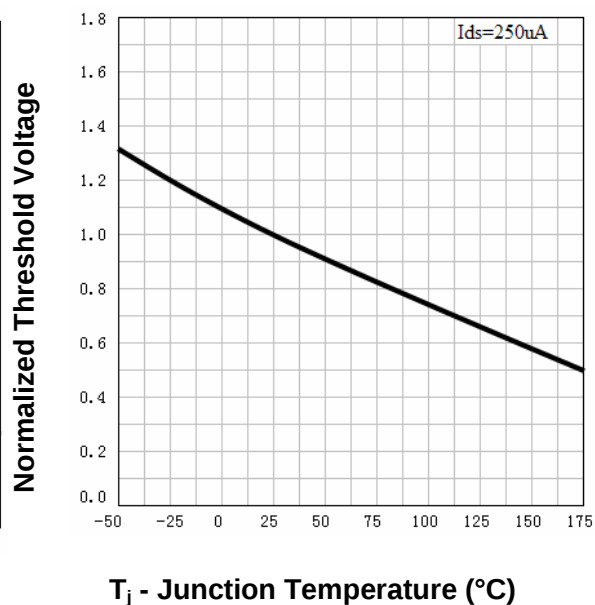
Drain-Source On Resistance



Drain-Source On Resistance

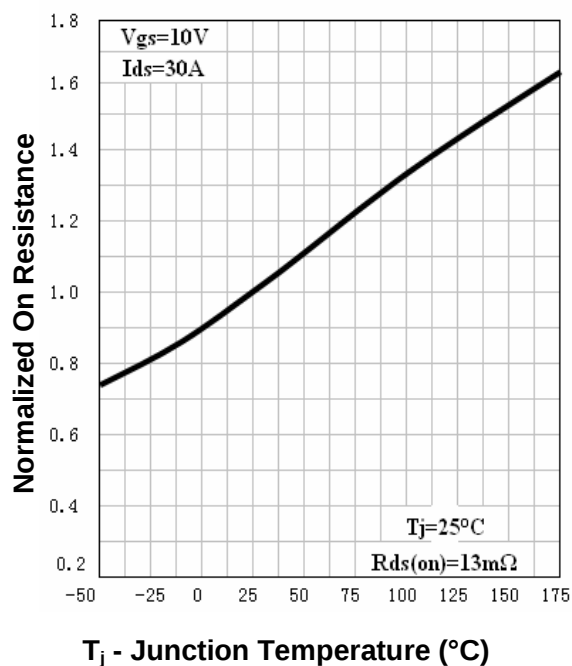


Gate Threshold Voltage

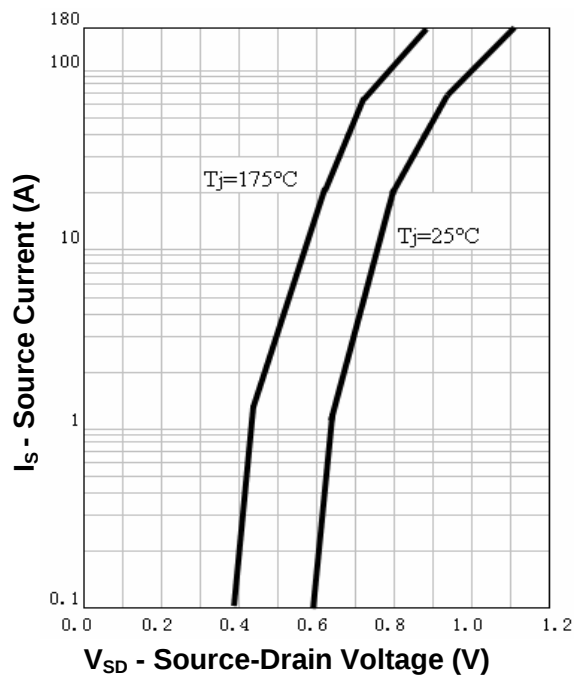


Typical Characteristics

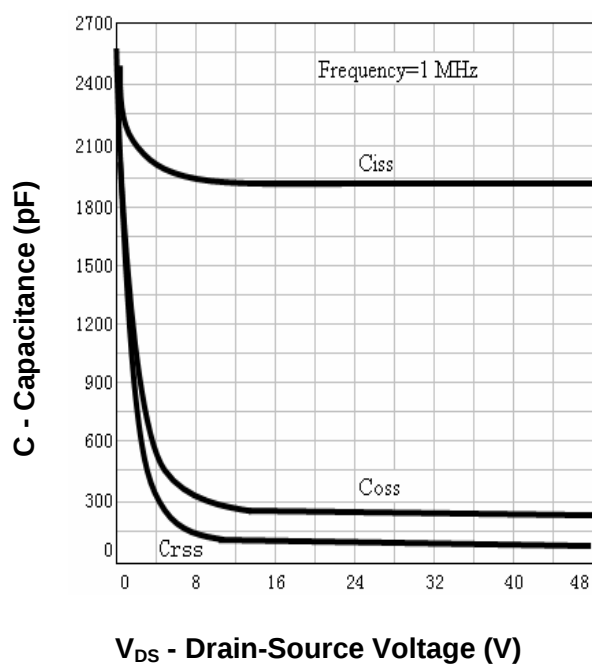
Drain-Source On Resistance



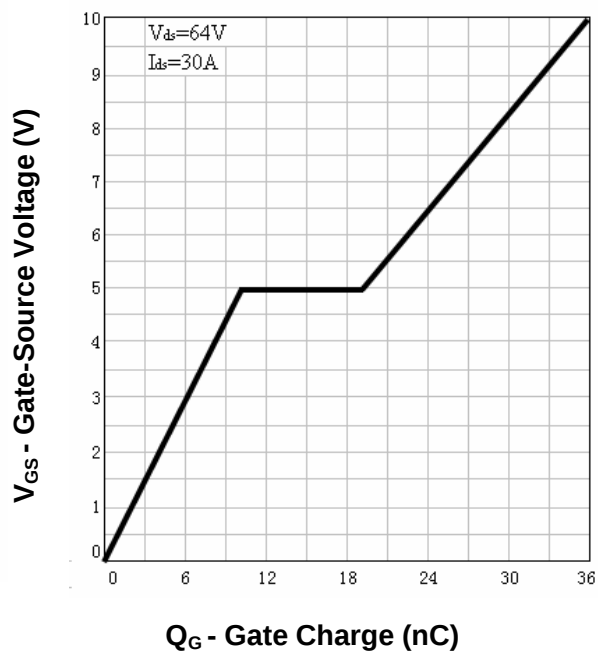
Source-Drain Diode Forward



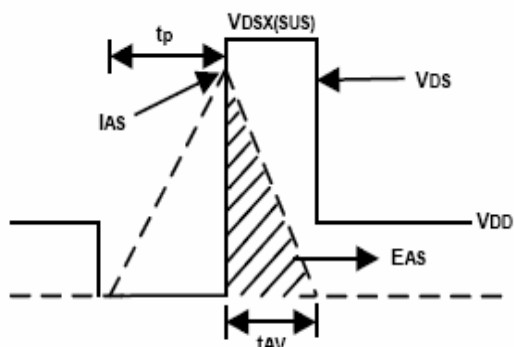
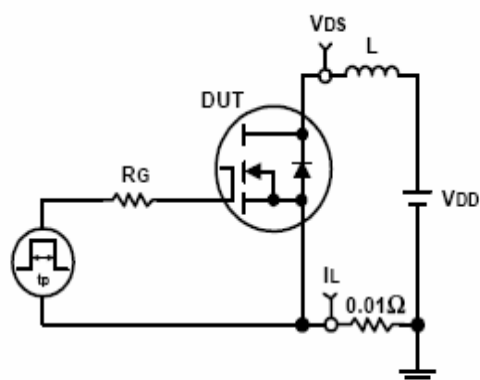
Capacitance



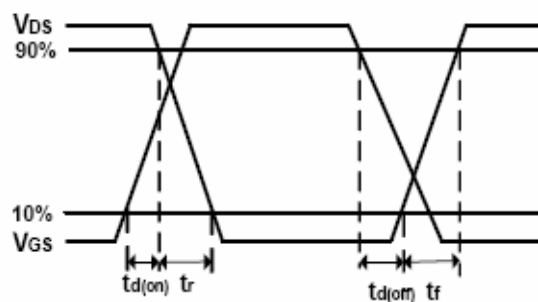
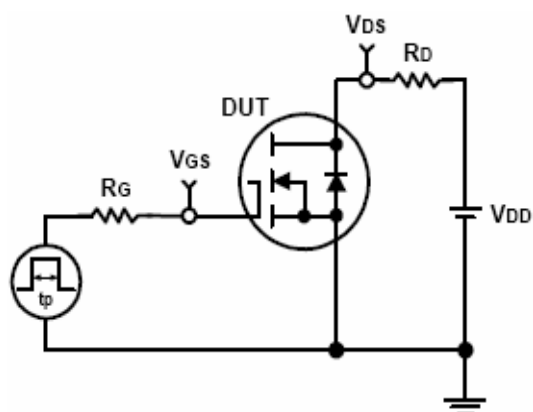
Gate Charge



Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Ordering and Marking Information

RU8048

Package (Available)

S : TO263

Operating Temperature Range

C : -55 to 175 °C

Assembly Material

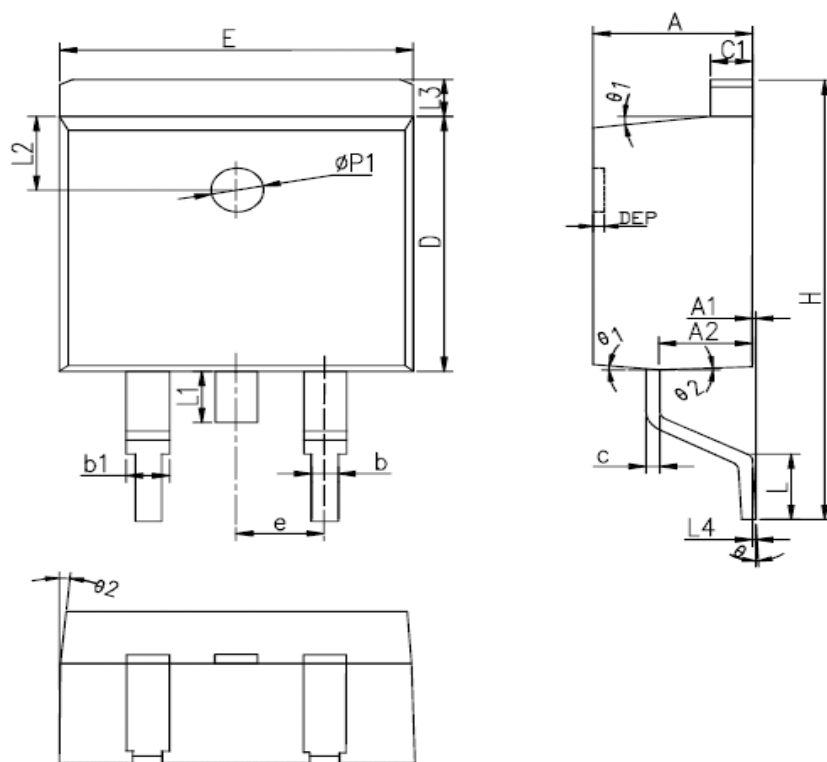
G : Green & Lead Free

Packaging

T : TUBE

Package Information

TO-263-2L



SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.57	4.70	0.173	0.180	0.185	L	2.00	2.30	2.60	0.079	0.090	0.102
A1	0	0.10	0.25	0	0.004	0.010	L3	1.17	1.27	1.40	0.046	0.050	0.055
A2	2.59	2.69	2.79	0.102	0.106	0.110	L1	-	-	1.70	-	-	0.067
b	0.77	-	0.90	0.030	-	0.035	L4	0.25BSC			0.01BSC		
b1	1.23	-	1.36	0.048	-	0.052	L2	2.50REF.			0.098REF.		
c	0.34	-	0.47	0.013	-	0.019	θ	0°	-	8°	0°	-	8°
C1	1.22	-	1.32	0.048	-	0.052	θ 1	5°	7°	9°	5°	7°	9°
D	8.60	8.70	8.80	0.338	0.343	0.346	θ 2	1°	3°	5°	1°	3°	5°
E	10.00	10.16	10.26	0.394	0.4	0.404	DEP	0.05	0.10	0.20	0.002	0.004	0.008
e	2.54BSC			0.1BSC			Øp1	1.40	1.50	1.60	0.055	0.059	0.063
H	14.70	15.10	15.50	0.579	0.594	0.610							

ALL DIMENSIONS REFER TO JEDEC STANDARD
DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS

Customer Service

Worldwide Sales and Service:

Sales@ruichips.com

Technical Support:

Technical@ruichips.com

Investor Relations Contacts:

Investor@ruichips.com

Marcom Contact:

Marcom@ruichips.com

Editorial Contact:

Editorial@ruichips.com

HR Contact:

HR@ruichips.com

Legal Contact:

Legal@ruichips.com

Shen Zhen RUICHIPS Semiconductor CO., LTD

Room 501, the 5floor An Tong Industrial Building,
NO.207 Mei Hua Road Fu Tian Area Shen Zhen City, CHINA

TEL: (86-755) 8311-5334

FAX: (86-755) 8311-4278

E-mail: Sales-SZ@ruichips.com