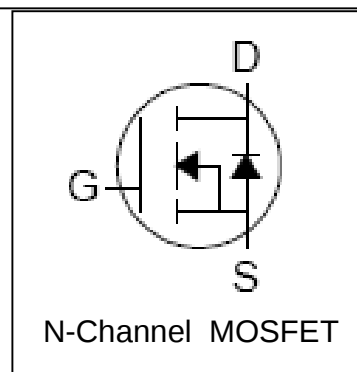
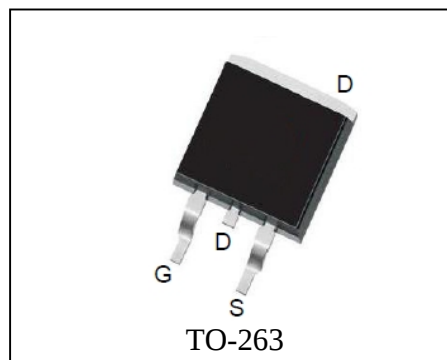


Features

- 75V/82A,
 $R_{DS(ON)} = 7.5m\Omega(Typ.) @ V_{GS}=10V$
- Super High Dense Cell Design
- Ultra Low On-Resistance
- 100% avalanche tested
- Lead Free and Green Devices Available
(RoHS Compliant)

Pin Description



Applications

- Switching Application Systems
- UPS

Absolute Maximum Ratings

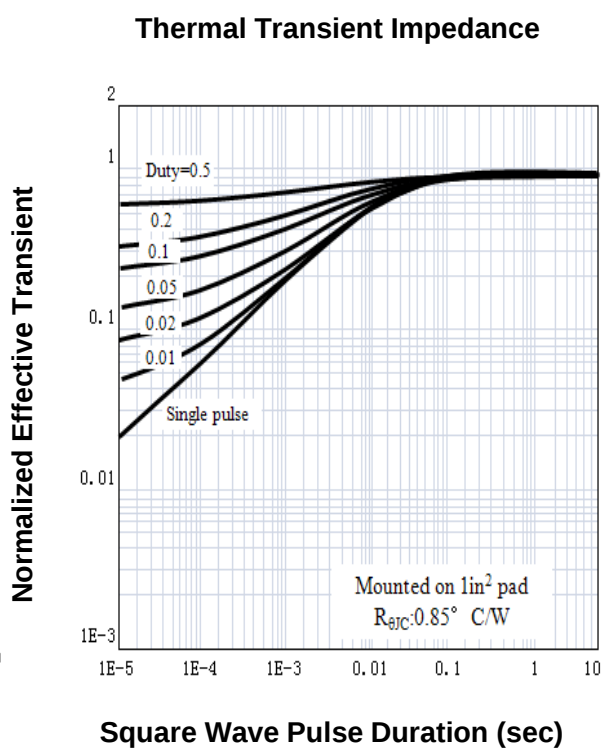
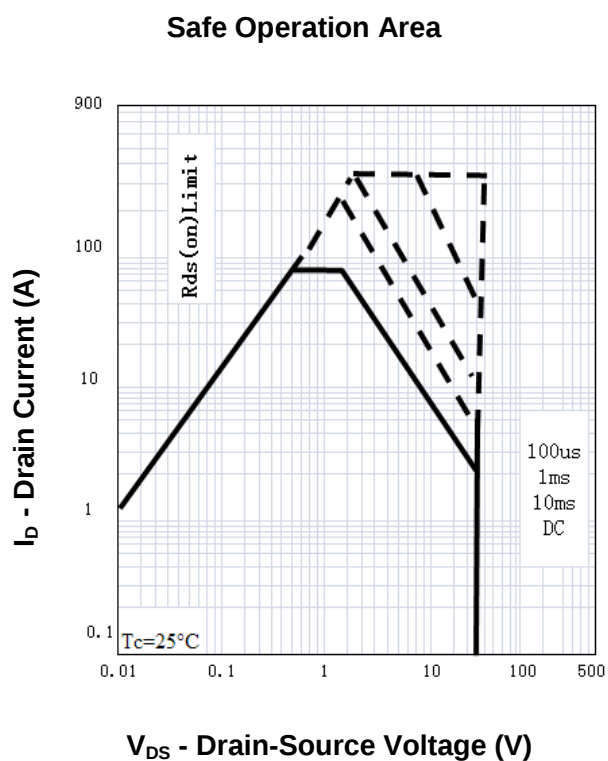
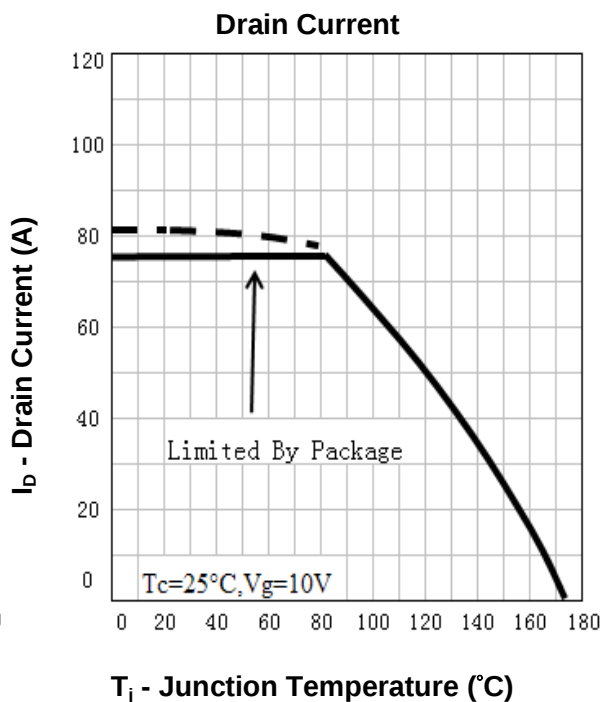
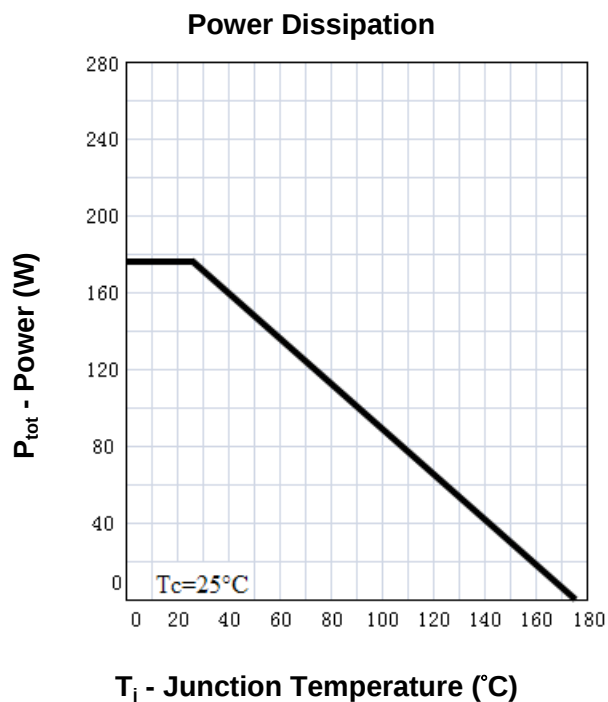
Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		75	V
V _{GSS}	Gate-Source Voltage		±25	
T _J	Maximum Junction Temperature		175	°C
T _{STG}	Storage Temperature Range		-55 to 175	°C
I _S	Diode Continuous Forward Current	T _C =25°C	82 ^①	A
Mounted on Large Heat Sink				
I _{DP}	300μs Pulse Drain Current Tested	T _C =25°C	328 ^②	A
I _D	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	82 ^①	A
		T _C =100°C	63	
P _D	Maximum Power Dissipation	T _C =25°C	176	W
		T _C =100°C	88	W
R _{θJC}	Thermal Resistance-Junction to Case		0.85	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^③	Avalanche Energy, Single Pulsed		225	mJ

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU7582S			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	75			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 75V, V _{GS} =0V			1	μA
		T _J =85°C			30	
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} =40A		7.5	11	mΩ
Diode Characteristics						
V _{SD} ^④	Diode Forward Voltage	I _{SD} =40A, V _{GS} =0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =40A, dI _{SD} /dt=100A/μs		37		ns
Q _{rr}	Reverse Recovery Charge			60		nC
Dynamic Characteristics ^⑤						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		0.8		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} = 30V, Frequency=1.0MHz		3400		pF
C _{oss}	Output Capacitance			460		
C _{rss}	Reverse Transfer Capacitance			180		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =0.75Ω, I _{DS} =40A, V _{GEN} = 10V, R _G =4.7Ω		30		ns
t _r	Turn-on Rise Time			25		
t _{d(OFF)}	Turn-off Delay Time			88		
t _f	Turn-off Fall Time			63		
Gate Charge Characteristics ^⑤						
Q _g	Total Gate Charge	V _{DS} =60V, V _{GS} = 10V, I _{DS} =40A		85		nC
Q _{gs}	Gate-Source Charge			20		
Q _{gd}	Gate-Drain Charge			30		

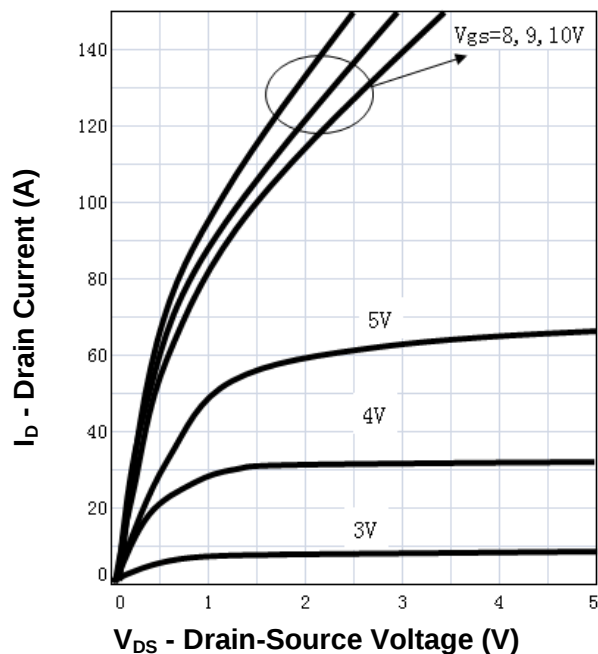
- Notes:
- ① Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 75A.
 - ② Pulse width limited by safe operating area.
 - ③ Limited by T_{Jmax} , $I_{AS}=30A$, $V_{DD}=48V$, $R_G=50\Omega$, Starting $T_J=25^{\circ}\text{C}$.
 - ④ Pulse test ; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑤ Guaranteed by design, not subject to production testing.

Typical Characteristics

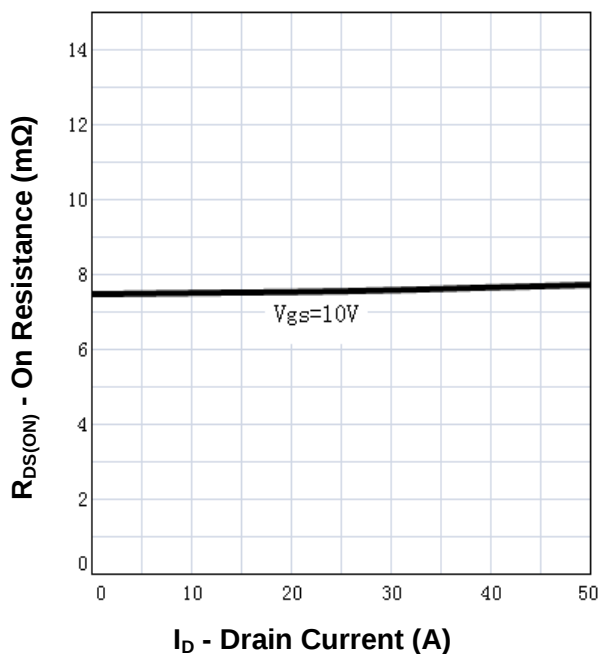


Typical Characteristics

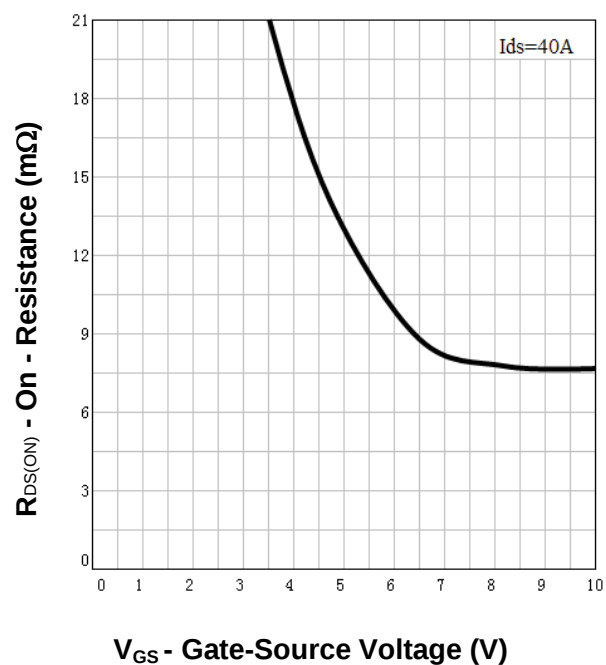
Output Characteristics



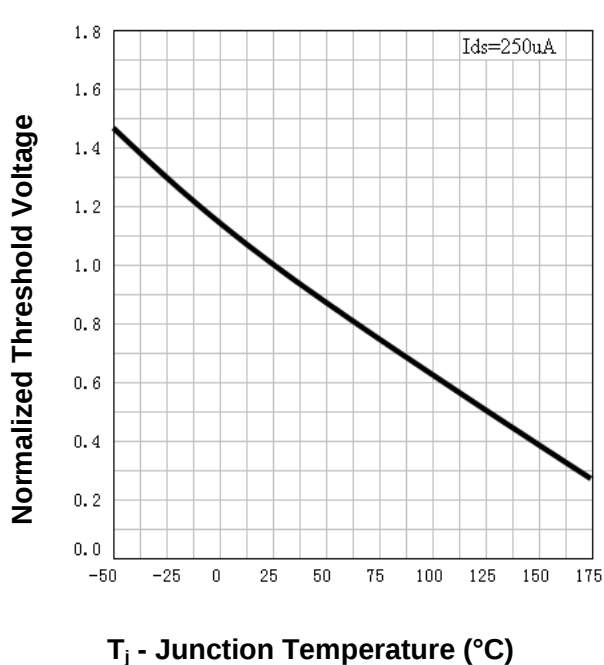
Drain-Source On Resistance



Drain-Source On Resistance

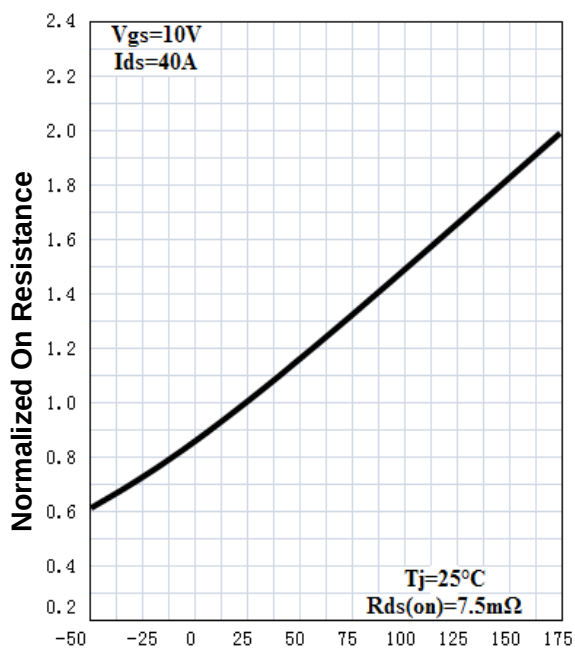


Gate Threshold Voltage



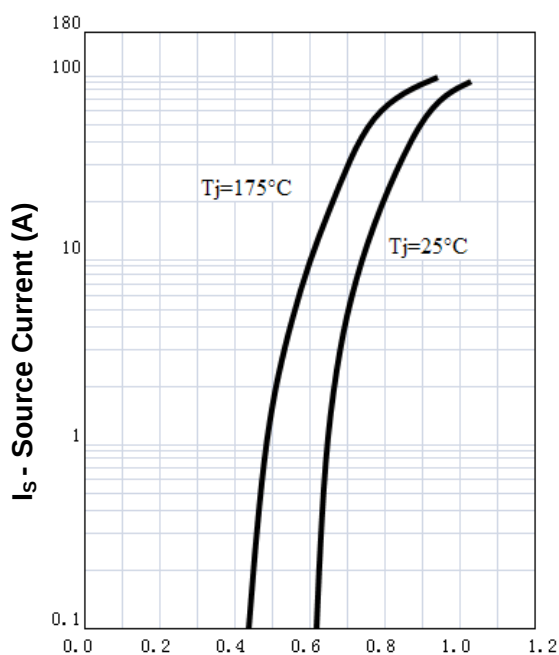
Typical Characteristics

Drain-Source On Resistance



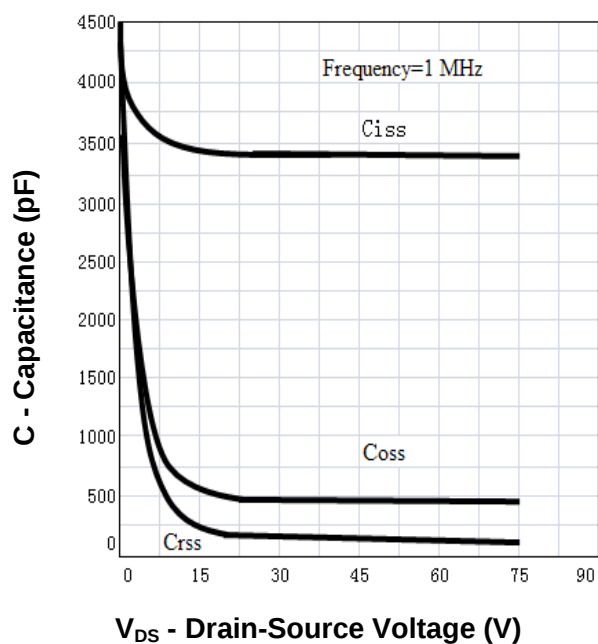
T_j - Junction Temperature ($^{\circ}\text{C}$)

Source-Drain Diode Forward



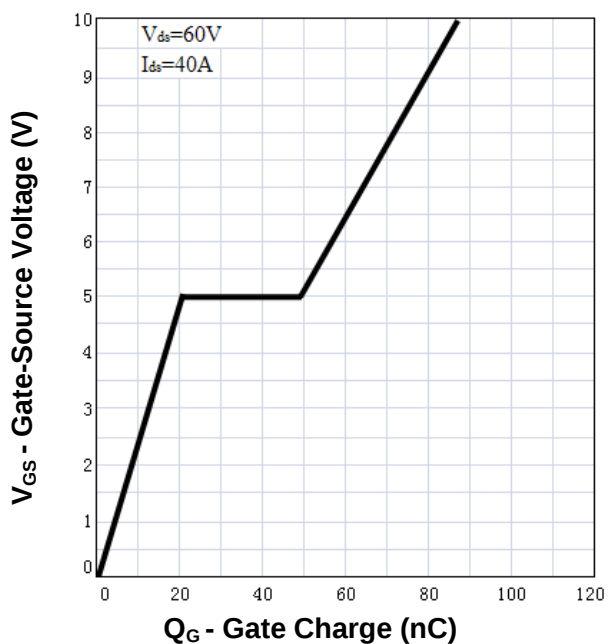
V_{SD} - Source-Drain Voltage (V)

Capacitance



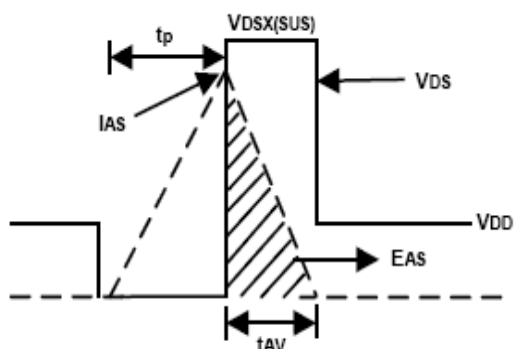
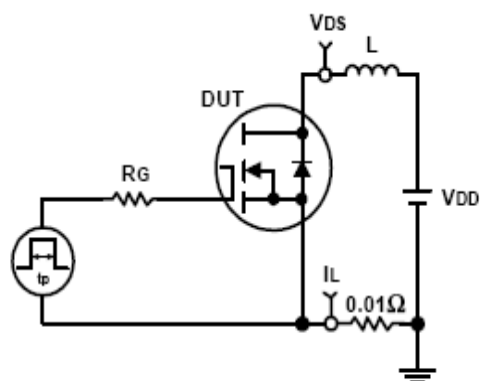
V_{DS} - Drain-Source Voltage (V)

Gate Charge

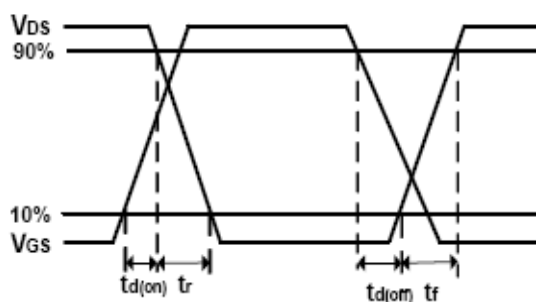
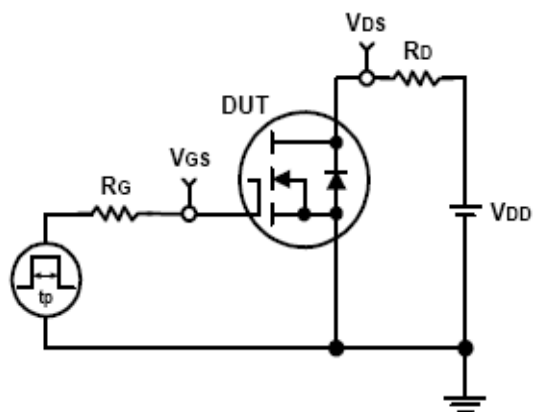


Q_G - Gate Charge (nC)

Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms

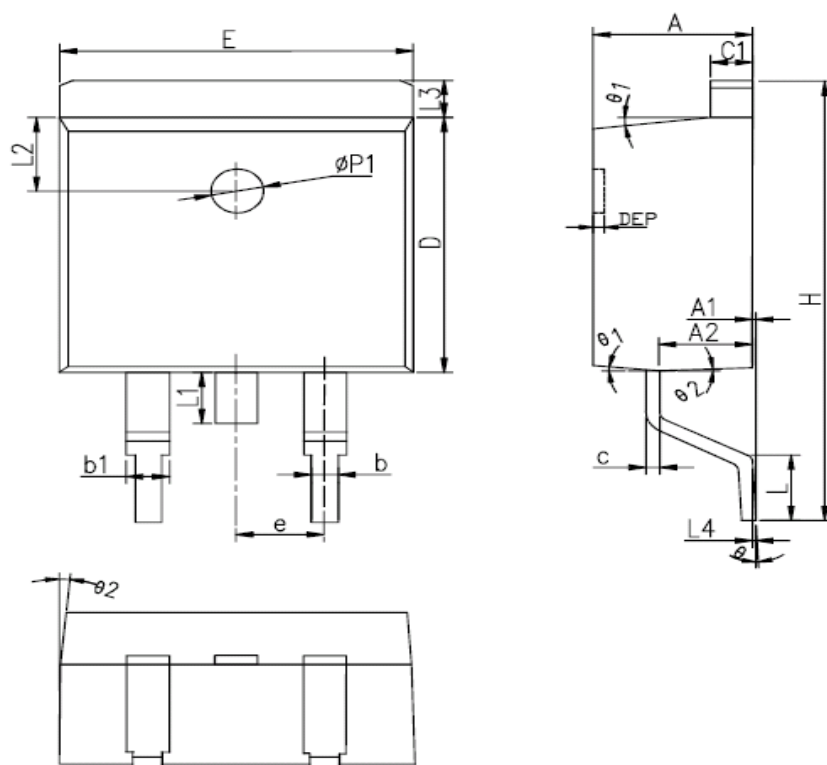


Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU7582S	RU7582S	TO-263	Tube	50	-	-

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

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