

N-Channel Enhancement Mode MOSFET

TDM3462

DESCRIPTION

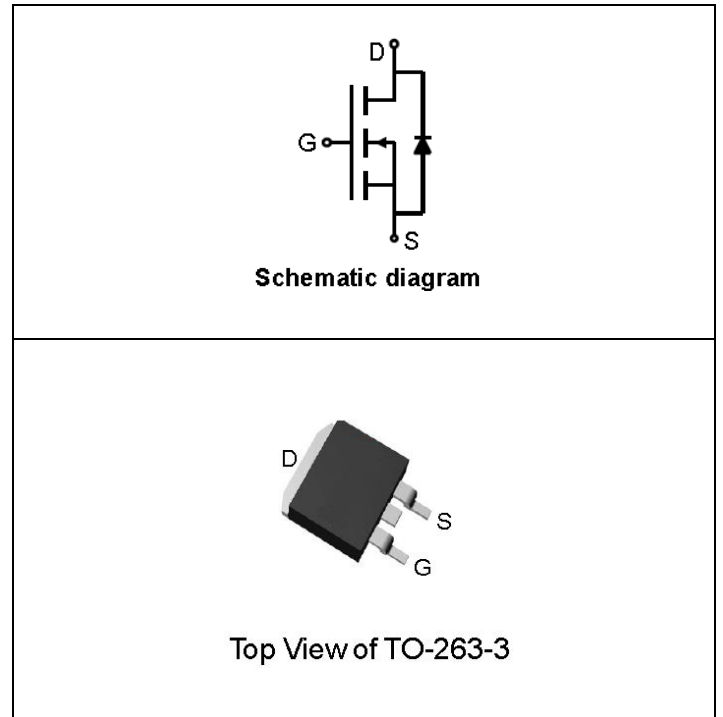
The TDM3462 uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.

GENERAL FEATURES

- 40V/120A  
RDS(ON) < 1.7mΩ @ VGS=10V
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Application

- High Efficiency Synchronous Rectification in SMPS.
- Uninterruptible Power Supply.
- High Speed Power Switching.



泰德半导体—提供样品, 技术支持 手机13418601901 QQ409545144

ABSOLUTE MAXIMUM RATINGS(TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	40	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Drain Current @ Continuous(Note 1)	I <sub>D</sub> (T <sub>C</sub> =25°C)	120	A
	I <sub>D</sub> (T <sub>C</sub> =100°C)	120	A
Drain Current @ Current-Pulsed (Note 1)	I <sub>DM</sub> (T <sub>C</sub> =25°C)	400	A
Maximum Power Dissipation (TA=25°C)	P <sub>D</sub>	2.5	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> ,T <sub>STG</sub>	-55 To 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient (Note 2)	RθJA	50	°C/W
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**N-Channel Enhancement Mode MOSFET**
**TDM3462**
**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	40			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=32V, V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b> (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=40A$		1.4	1.7	m $\Omega$
<b>DYNAMIC CHARACTERISTICS</b> (Note4)						
Input Capacitance	$C_{iss}$	$V_{DS}=20V, V_{GS}=0V, F=1.0MHz$		105555	13721	PF
Output Capacitance	$C_{oss}$			3900		PF
Reverse Transfer Capacitance	$C_{rss}$			235		PF
<b>SWITCHING CHARACTERISTICS</b> (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=20V, R_L=20\Omega,$ $V_{GS}=10V, R_{GEN}=1\Omega, I_D=1A$		41	75	nS
Turn-on Rise Time	$t_r$			21	39	nS
Turn-Off Delay Time	$t_{d(off)}$			84	152	nS
Turn-Off Fall Time	$t_f$			111	201	nS
Total Gate Charge	$Q_g$	$V_{DS}=20V, I_D=40A, V_{GS}=10V$		178	249	nC
Gate-Source Charge	$Q_{gs}$			52		nC
Gate-Drain Charge	$Q_{gd}$			32		nC
Body Diode Reverse Recovery Time	$T_{rr}$	$I_F=40A, di/dt=100A/\mu s$		71.6		nS
Body Diode Reverse Recovery Charge	$Q_{rr}$			71.9		nC
<b>DRAIN-SOURCE DIODE CHARACTERISTICS</b>						
Diode Forward Voltage (Note 3)	$V_{SD}$	$V_{GS}=0V, I_S=20A$		0.76	1.1	V

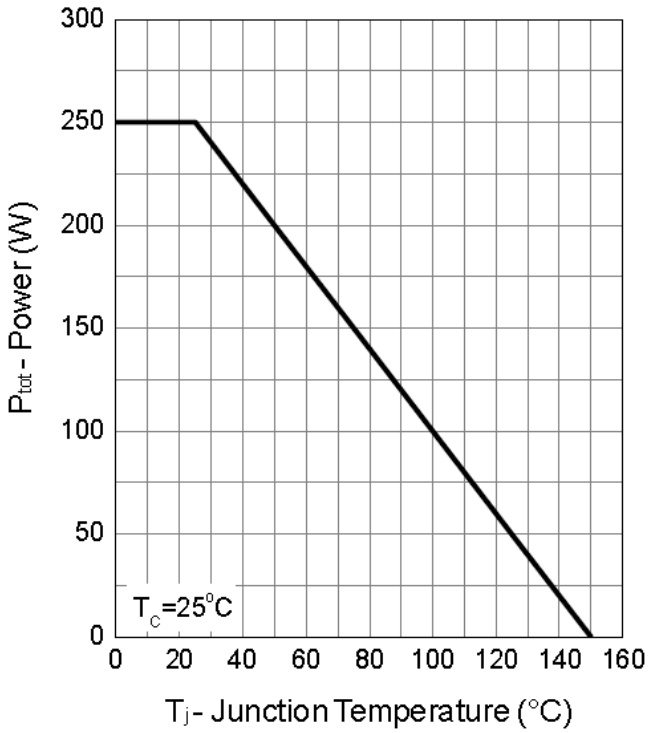
**NOTES:**

1.  $I_{Dmax}$ . current limited by bond wire.
2. Surface Mounted on 1in2 FR4 Board,  $t \leq 999$  sec.
3. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to production testing

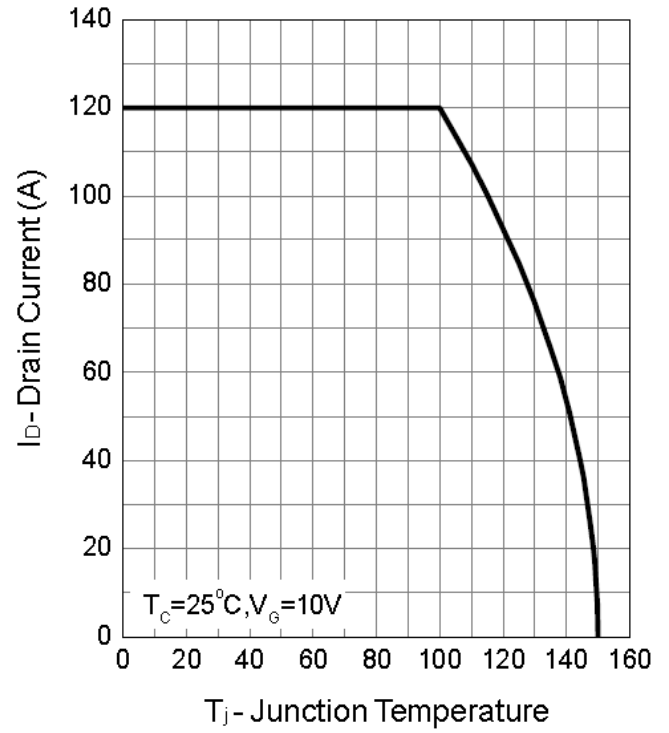
N-Channel Enhancement Mode MOSFET TDM3462

Typical Operating Characteristics

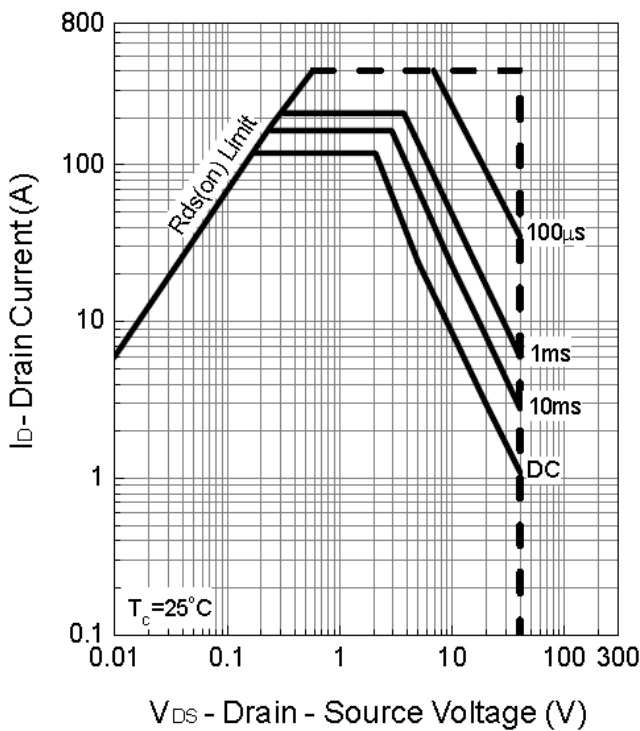
Power Dissipation



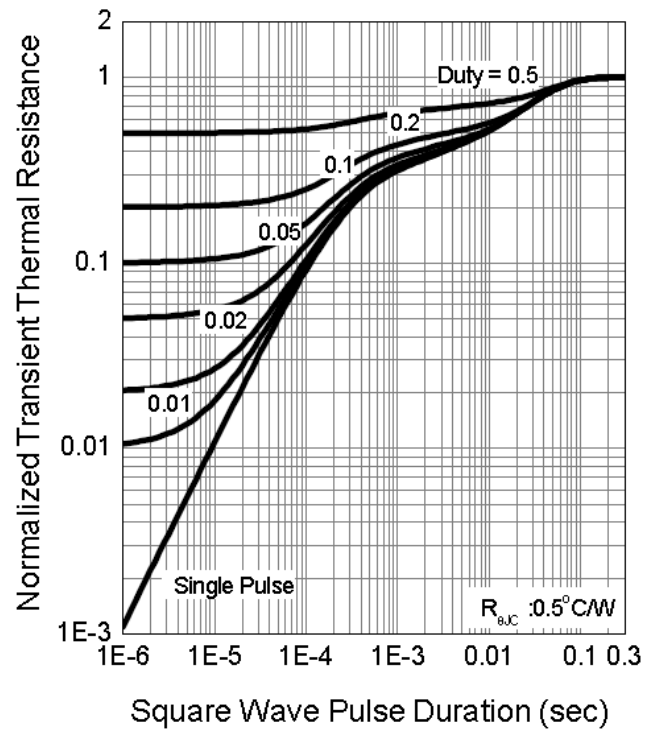
Drain Current



Safe Operation Area

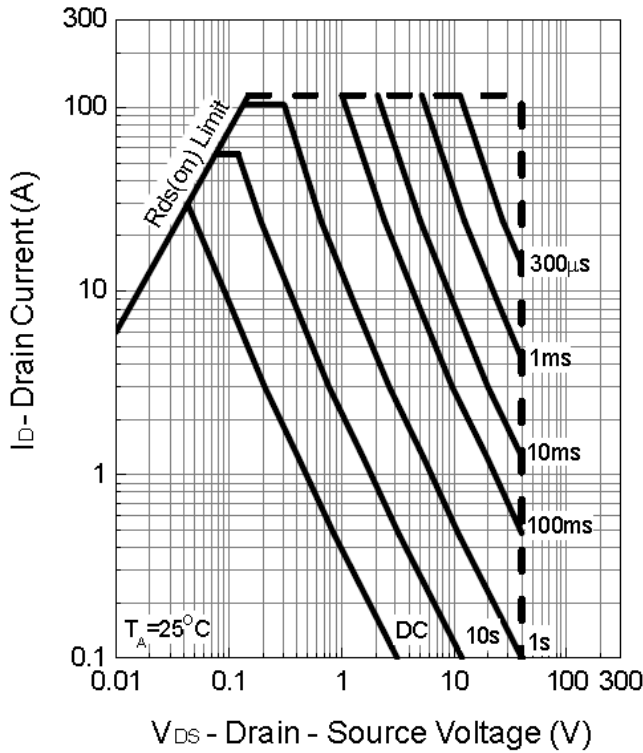


Thermal Transient Impedance

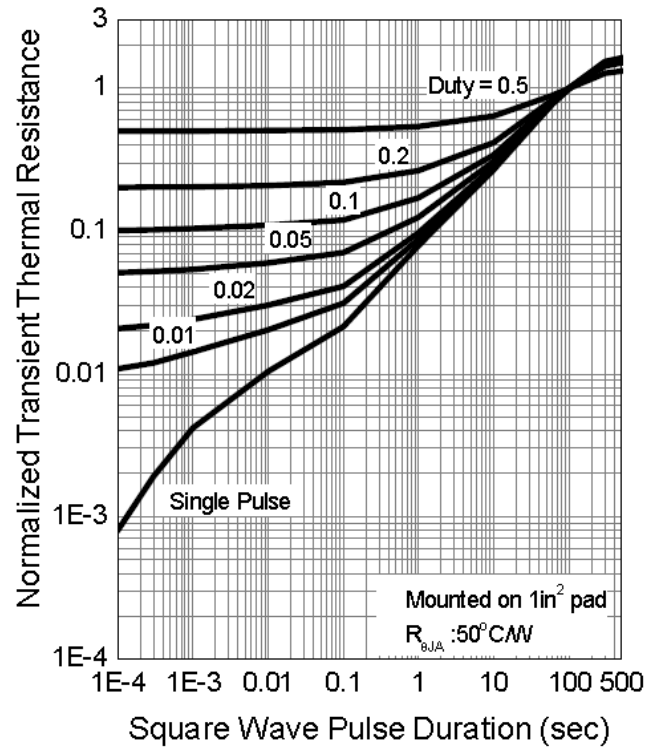


Typical Operating Characteristics(Cont.)

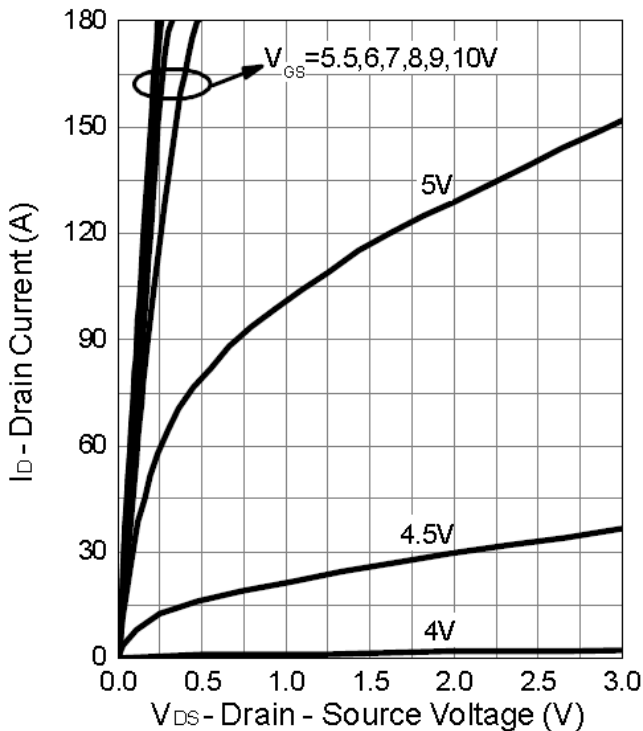
Safe Operation Area



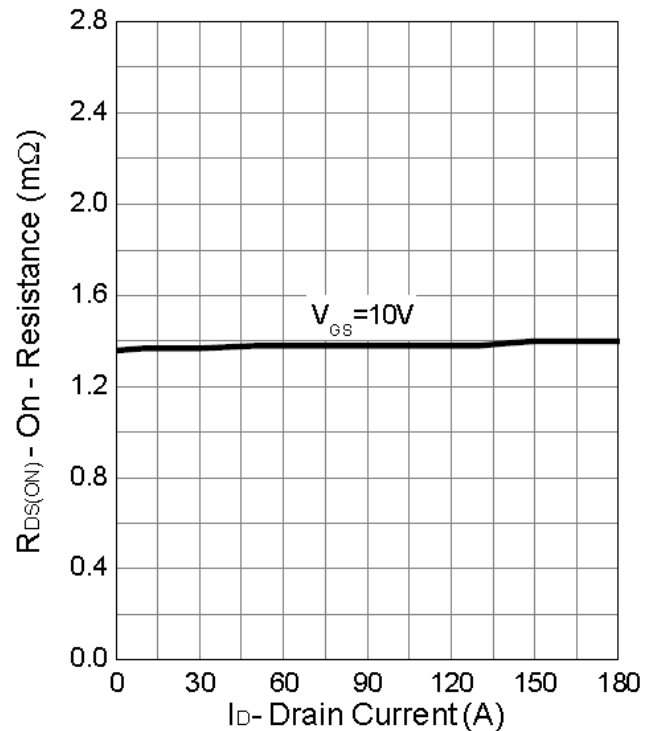
Thermal Transient Impedance



Output Characteristics

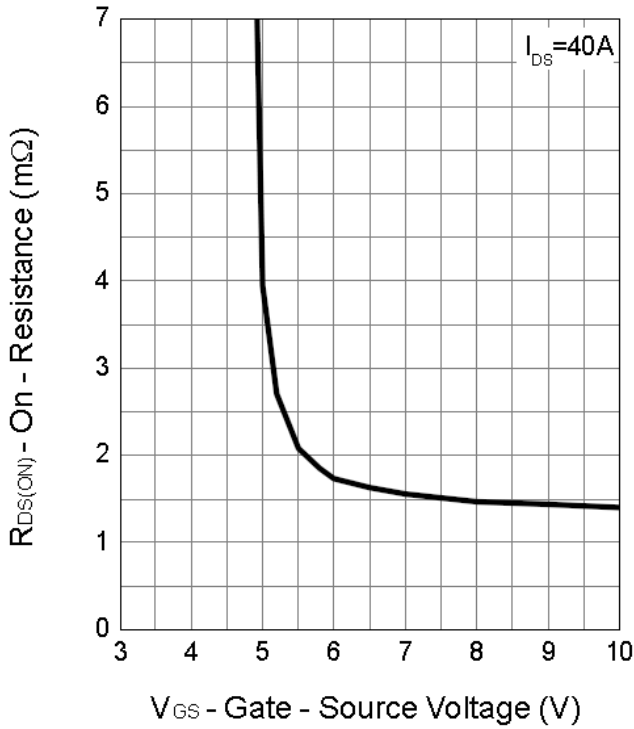


Drain-Source On Resistance

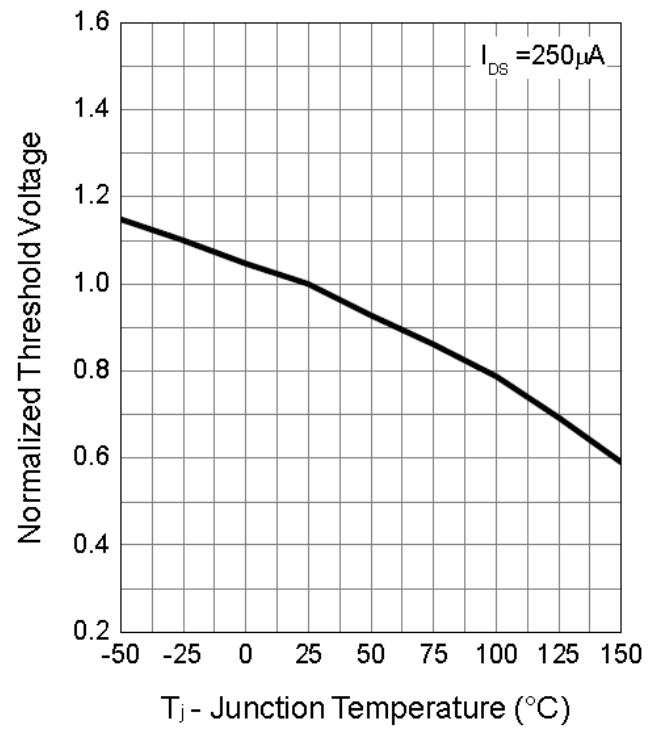


Typical Operating Characteristics (Cont.)

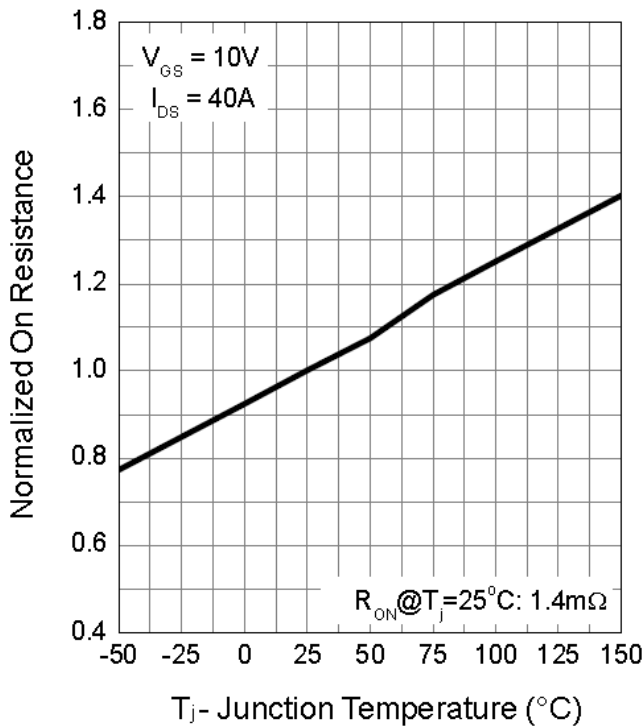
Gate-Source On Resistance



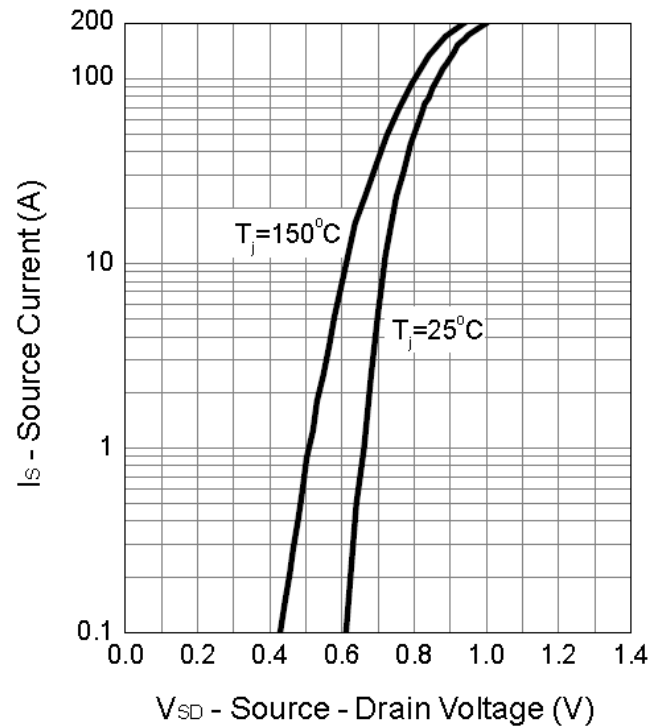
Gate Threshold Voltage



Drain-Source On Resistance

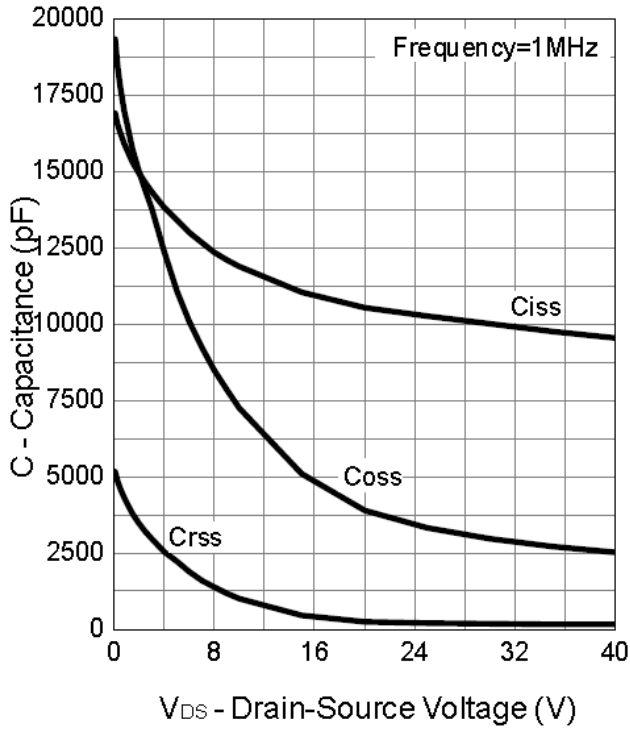


Source-Drain Diode Forward

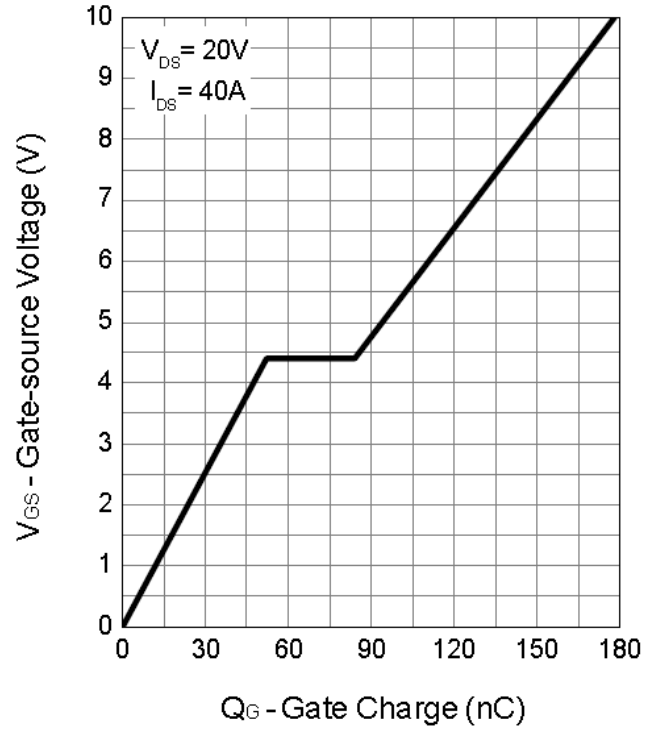


Typical Operating Characteristics(Cont.)

Capacitance

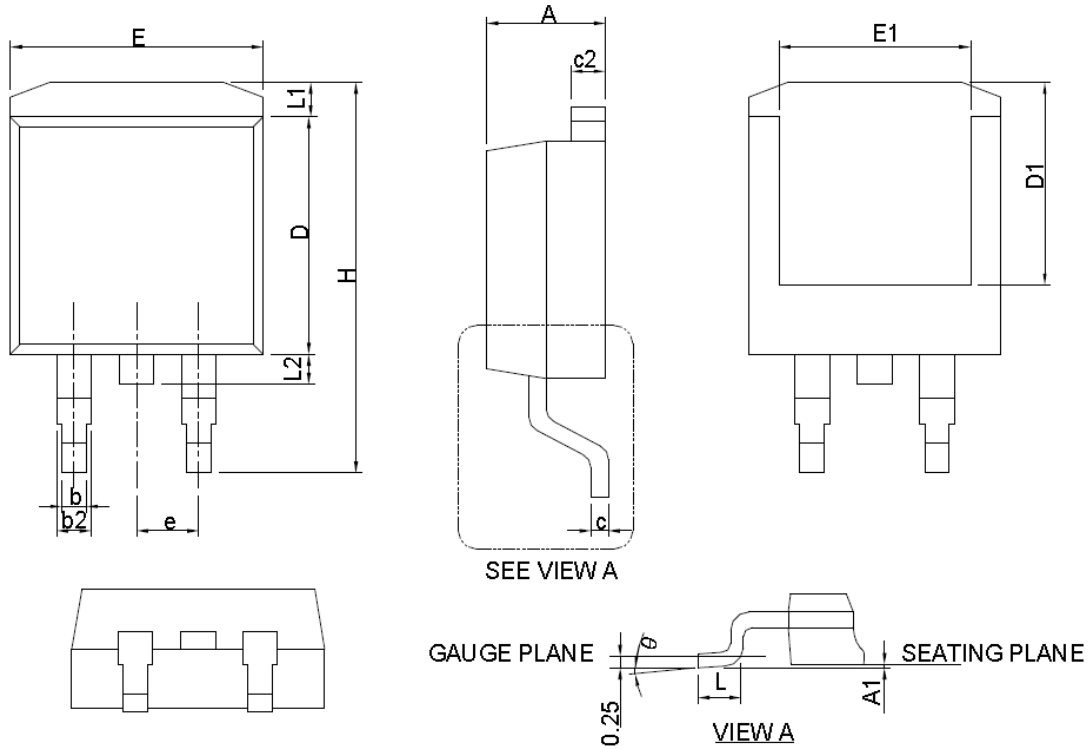


Gate Charge



Package Information

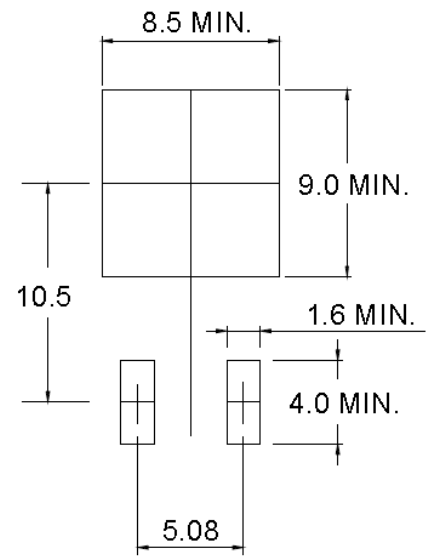
TO263-3 Package



DIMENSIONS	TO-263-3			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.06	4.83	0.160	0.190
A1	0.00	0.25	0.000	0.010
b	0.51	0.99	0.020	0.039
b2	1.14	1.78	0.045	0.070
c	0.38	0.74	0.015	0.029
c2	1.14	1.65	0.045	0.065
D	8.38	9.65	0.330	0.380
D1	6.00	9.00	0.236	0.354
E	9.65	11.43	0.380	0.450
E1	6.22	9.00	0.245	0.354
e	2.54 BSC		0.100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	-	1.68	-	0.066
L2	-	1.78	-	0.070
θ	0°	8°	0°	8°

Note : Follow JEDEC TO-263 AB.

RECOMMENDED LAND PATTERN



UNIT: mm

Design Notes