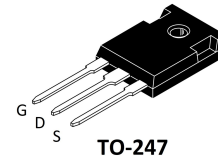
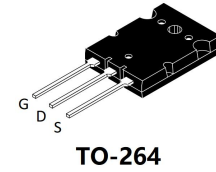


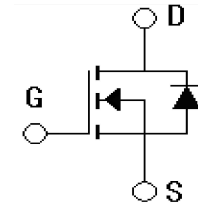
Features

- $V_{DS}=300V, I_D=140A$
 $R_{DS(on)} < 32m\Omega @ V_{GS}=10V$
- High density cell design for ultra low R_{dson}
- Low gate charge
- Improved dv/dt capability
- RoHS product



Applications

- Power switching application
- Isolated DC/DC converters in Telecom and Industrial
- Synchronous Rectification in DC/DC Converters



Absolute Ratings ($T_c=25^\circ C$)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	300	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	140	A
Drain Current-pulse	I_{DM}	300	A
Single Pulsed Avalanche Energy	E_{AS}	5	J
Maximum Power Dissipation (TO-264)	PD	$T_c=25^\circ C$	W
		$T_c=100^\circ C$	
Maximum Power Dissipation (TO-247)	PD	$T_c=25^\circ C$	W
		$T_c=100^\circ C$	
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$

Electrical Characteristics($T_{CASE}=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	300	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V$	-	-	25	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 200	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.4	3.4	4.4	V

Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A$	-	27	32	mΩ
Forward Transconductance	g_{fs}	$V_{DS}=20V, I_D=70A$	50	90	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	14.8	-	nF
Output capacitance	C_{oss}		-	1830	-	pF
Reverse transfer capacitance	C_{rss}		-	55	-	pF

Electrical Characteristics($T_{CASE}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DS} =150V,I _D =70A, R _G =1Ω V _{GS} =10V	-	30	-	ns
Turn-On rise time	t _r		-	30	-	ns
Turn-Off delay time	t _{d(Off)}		-	100	-	ns
Turn-Off rise time	t _f		-	20	-	ns
Total Gate Charge	Q _g	V _{DS} =150V,I _D =70A, V _{GS} =10V	-	185	-	nC
Gate-Source charge	Q _{gs}		-	72	-	nC
Gate-Drain charge	Q _{gd}		-	60	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Current	V _{SD}	V _{GS} =0V,I _S =30A	-	0.84	1.2	V
Diode Forward Current	I _S	T _C =25℃	-	-	140	A
Reverse recovery time	t _{rr}	I _S =25A, dI _S /dt=100A/μs	-	-	350	ns
Reverse recovery charge	Q _{rr}		-	0.6	-	μC

Thermal Characteristic

Parameter	Symbol	Value		Unit
		TO-264	TO-247	
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.12	0.4	$^{\circ}C/W$

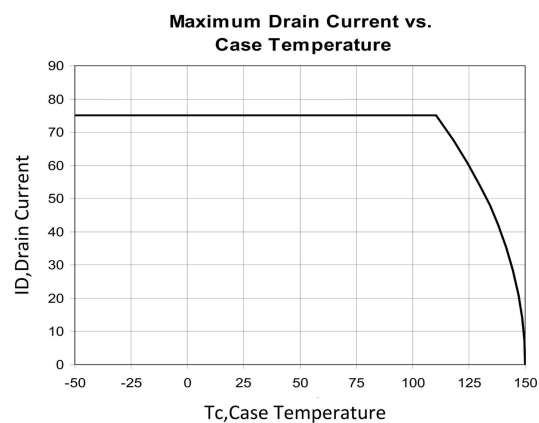
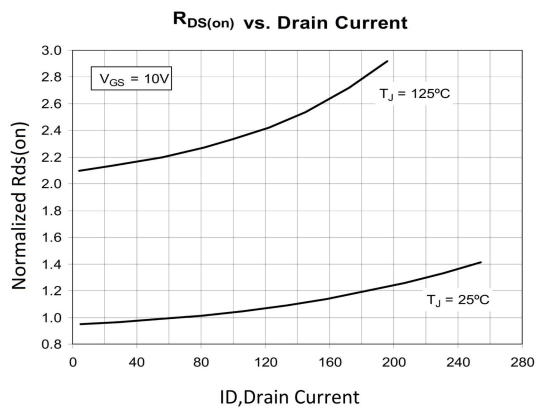
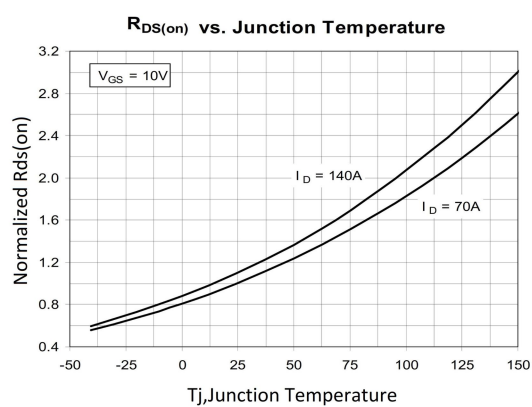
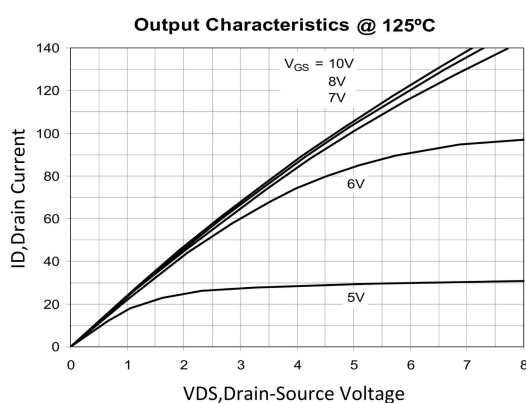
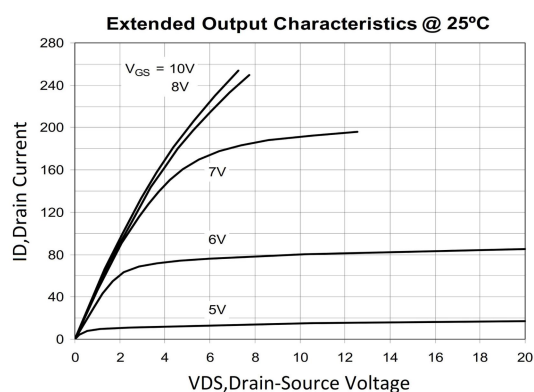
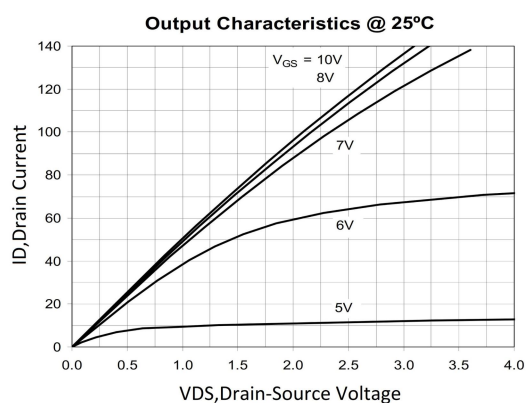
Notes:

1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

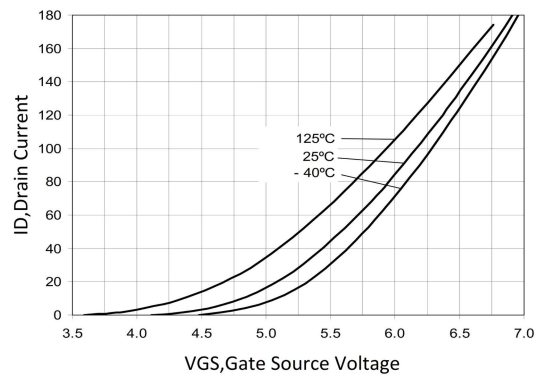
Order Message

Marking	Package
MS140N30HGB3	TO-264
MS140N30HGC0	TO-247

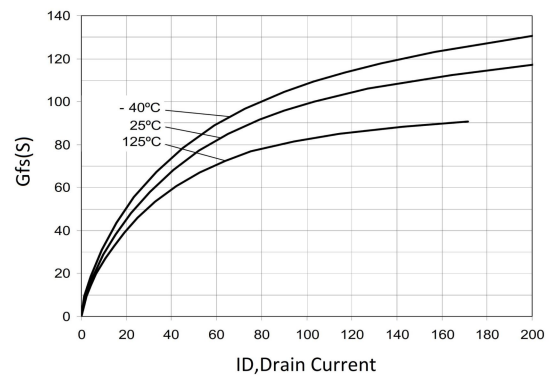
Electrical Characteristics



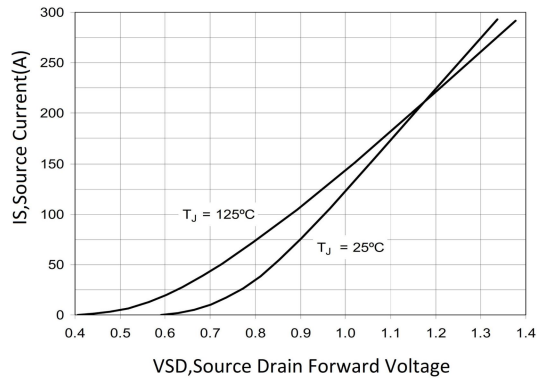
Transfer Characteristics



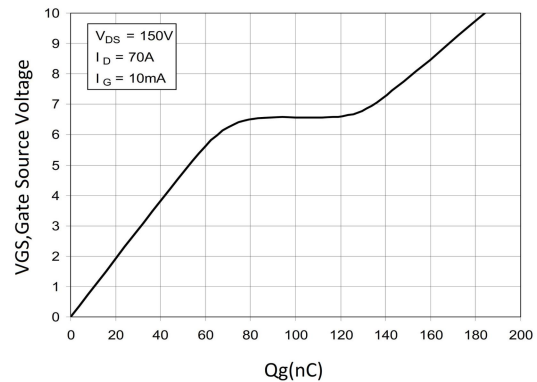
Transconductance



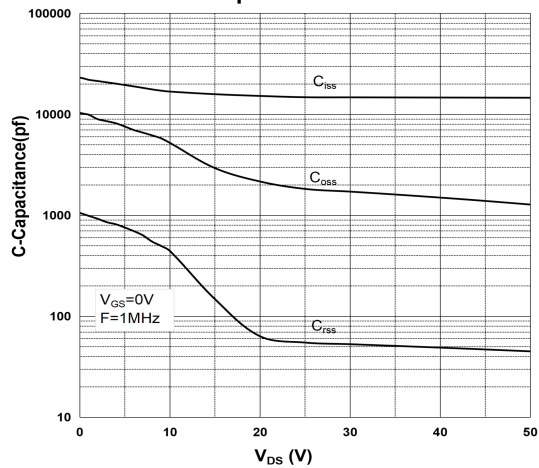
Forward Voltage Drop of Intrinsic Diode



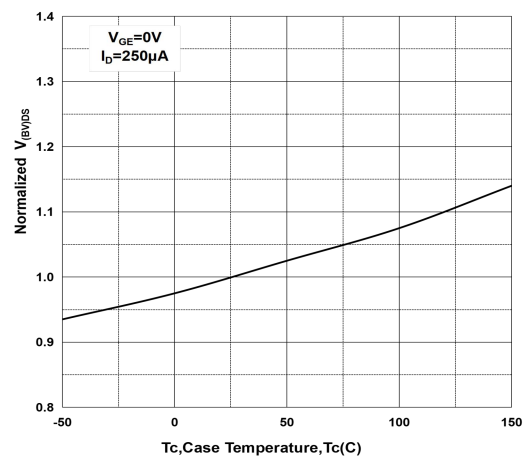
Gate Charge



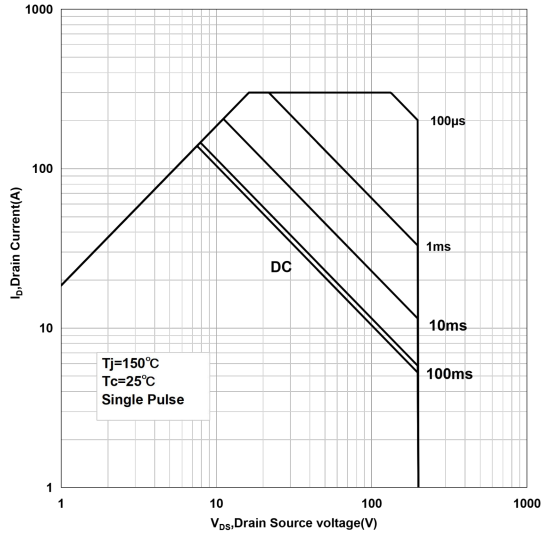
Capacitance



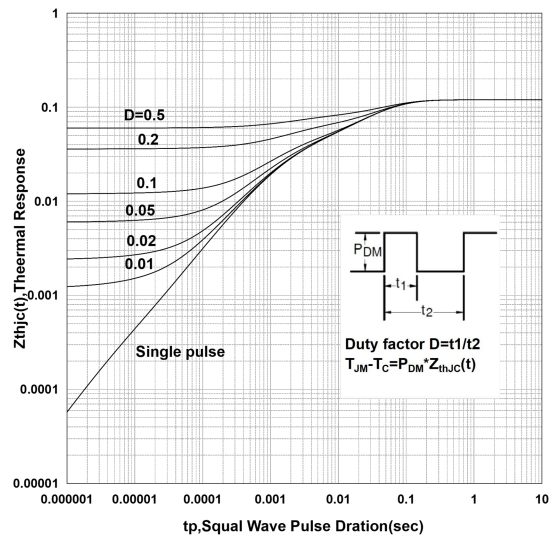
Normalized $V_{(BV)DS}$ vs temperature



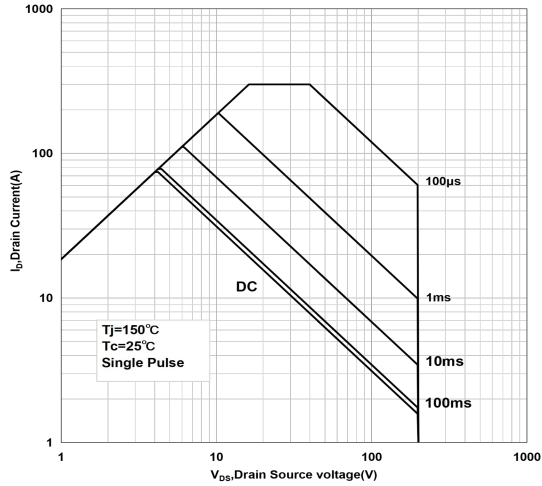
Safe Operating Area for TO-264



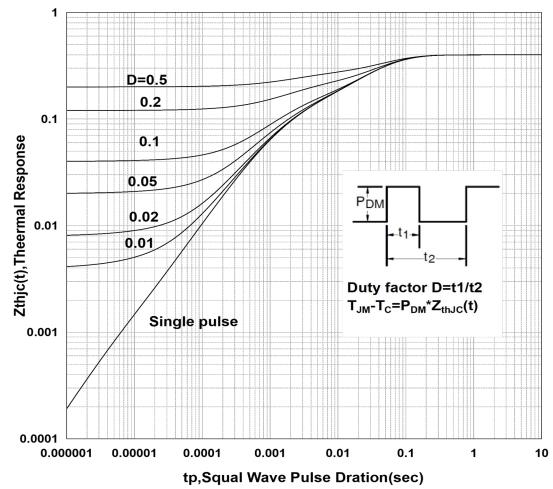
Transient response Curve for TO-264



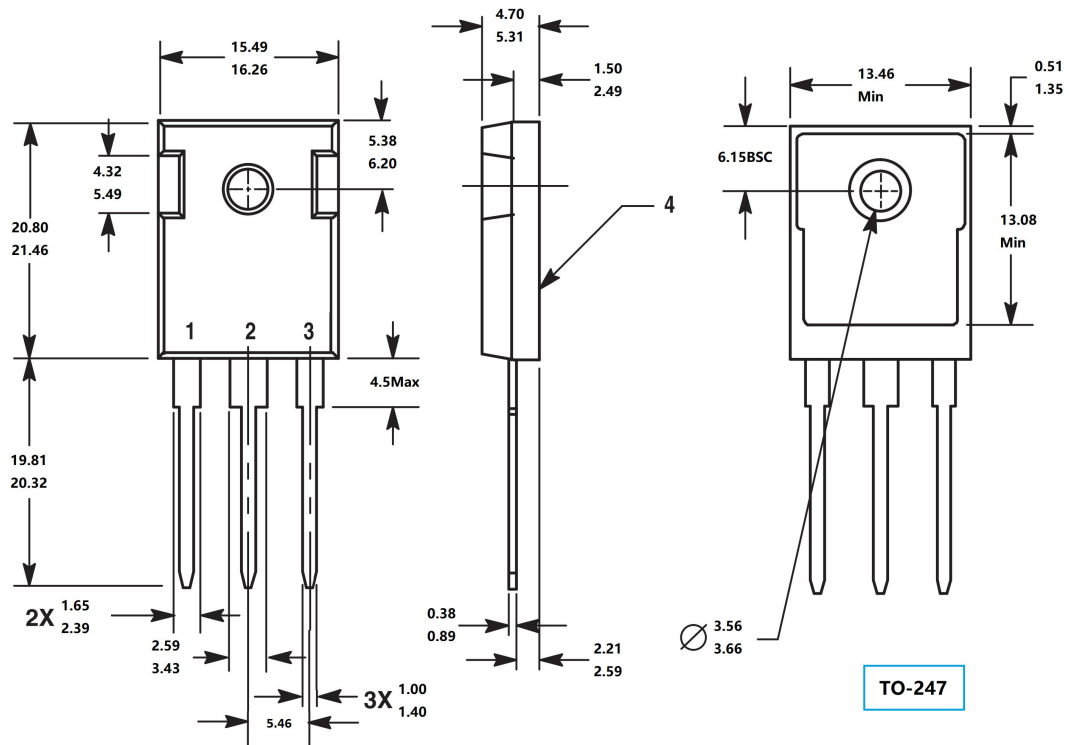
Safe Operating Area for TO-247



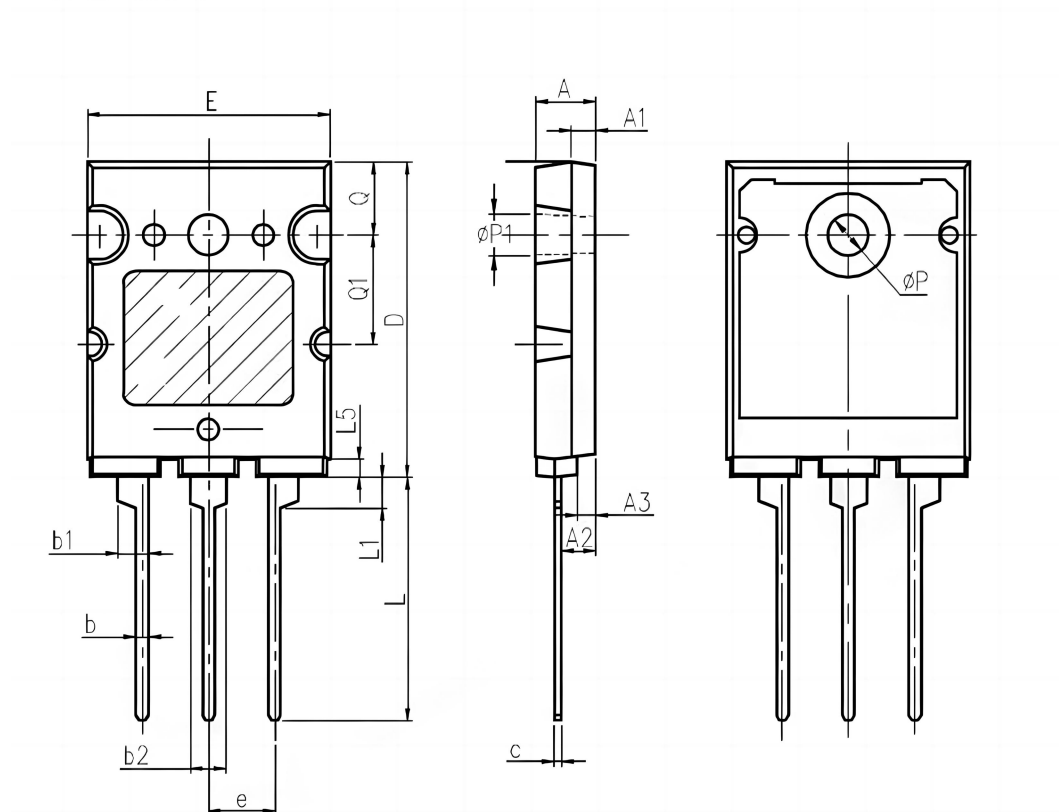
Transient response Curve for TO-247



Package Mechanical DATA



TO-264



COMMON DIMENSIONS

SYMBOL	MM		
	MIN	NOM	MAX
A	4.70	5.00	5.30
A1		2.00	REF
A2	2.50	2.80	3.10
A3		1.50	REF
b	0.90	1.00	1.25
b1	2.30	2.50	2.75
b2	2.80	3.00	3.30
c	0.50	0.60	0.85
D	25.50	26.00	26.50
E	19.50	20.00	20.50
e		5.45	TYP
L	19.50	20.00	20.50
L1	2.30	2.50	2.70
L5		1.35	REF
P	2.95	3.20	3.45
P1	3.15	3.40	3.65
Q	5.75	6.00	6.25
Q1	8.70	9.00	9.30

Notes

All Dimensions refer to jedec standard TO-264,
Do not include mold flash or protrusions.