

Features

- AEC-Q101 qualified
- Extremely low on-resistance $R_{DS(on)}$
- Low reverse transfer capacitances
- 100% single pulse avalanche energy test
- 100% ΔV_{DS} test
- Pb-Free plating / Halogen-Free / RoHS compliant

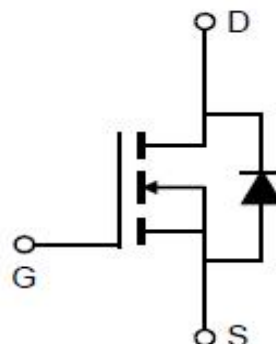
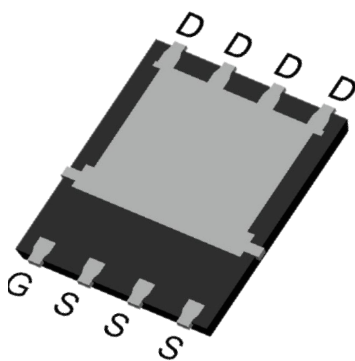
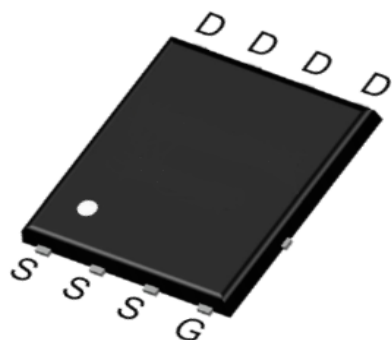
Key Parameters

V_{DS}	40V
$R_{DS(on)typ.}$	0.8mΩ
I_D	340A
$C_{iss@10V}$	5275pF
Q_{gd}	7.3nC

Applications

- Motor Control and Drive
- Charge/Discharge for Battery Management System
- Synchronous Rectifier for SMPS
- Automotive applications

DFN5*6



Marking & Packing Information

Part #	Package	Marking	Tube/Reel	Qty(pcs)
NVMFWS0D4N04XMT1G-CN	DFN5*6-8	009N04LA	Reel	3000/reel

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	40	V
Gate-Source voltage	V_{GS}	±20	V
Continuous drain current $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	I_D	340 240	A
Pulsed drain current ($T_C = 25^\circ\text{C}$, t_p limited by T_{jmax})	$I_{D\ pulse}$	1360	A
Avalanche energy, single pulse ($L=0.5\text{mH}$, $R_g=25\Omega$)	E_{AS}	900	mJ
Power dissipation $T_C = 25^\circ\text{C}$ $T_A = 25^\circ\text{C}$	P_{tot}	176	W
		1.92	W
Operating junction and storage temperature	T_j, T_{stg}	-55...+175	°C

Thermal Resistance

Parameter	Symbol	Max	Unit
Thermal resistance, junction – case.	R_{thJC}	0.85	°C/W
Thermal resistance, junction – ambient(min. footprint)	R_{thJA}	78	

Electrical Characteristic (at $T_j = 25^\circ\text{C}$, unless otherwise specified)
Static Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Drain-source breakdown voltage	BV_{DSS}	40	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate threshold voltage	$V_{GS(th)}$	1.2	1.6	2.2	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Zero gate voltage drain current	I_{DSS}	-	-	1	μA	$V_{DS}=40V, V_{GS}=0V$ $T_j=25^\circ\text{C}$
		-	-	100		$T_j=125^\circ\text{C}$
Gate-source leakage current	I_{GSS}	-	-	100	nA	$V_{GS}=20V, V_{DS}=0V$
Drain-source on-state resistance	$R_{DS(on)}$	-	0.8	0.95	mΩ	$V_{GS}=10V, I_D=90A,$ $T_j=25^\circ\text{C}$
		-	1.2	1.6		$V_{GS}=4.5V, I_D=90A$

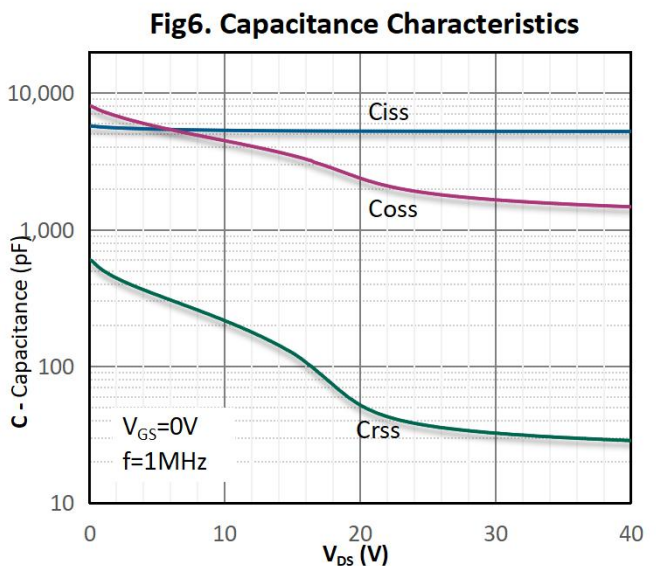
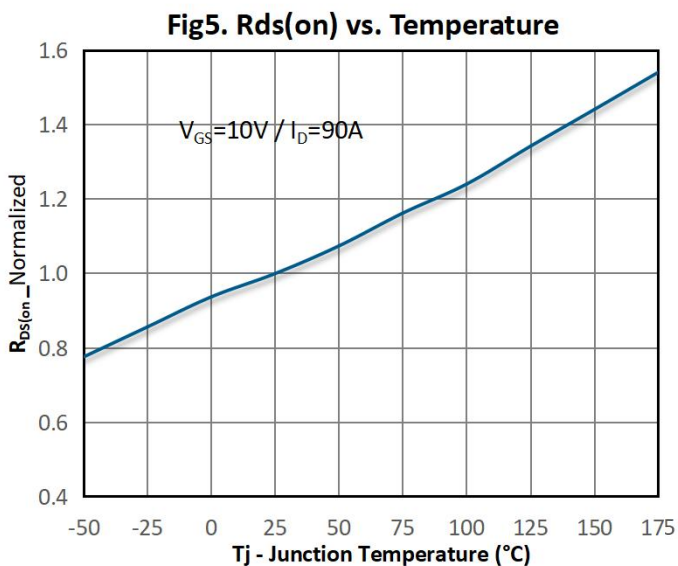
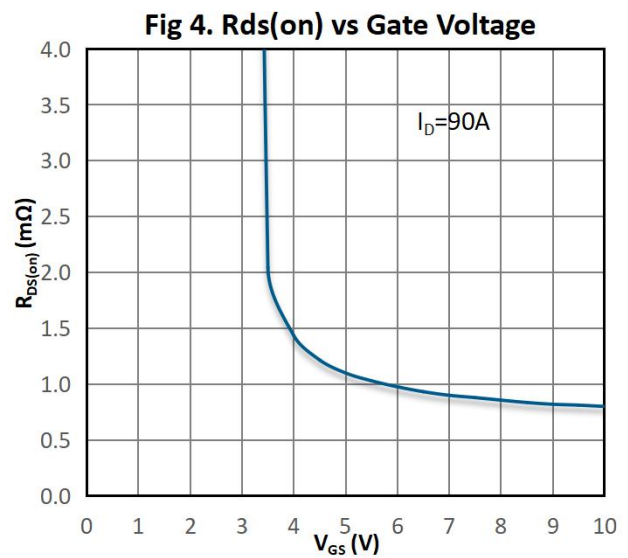
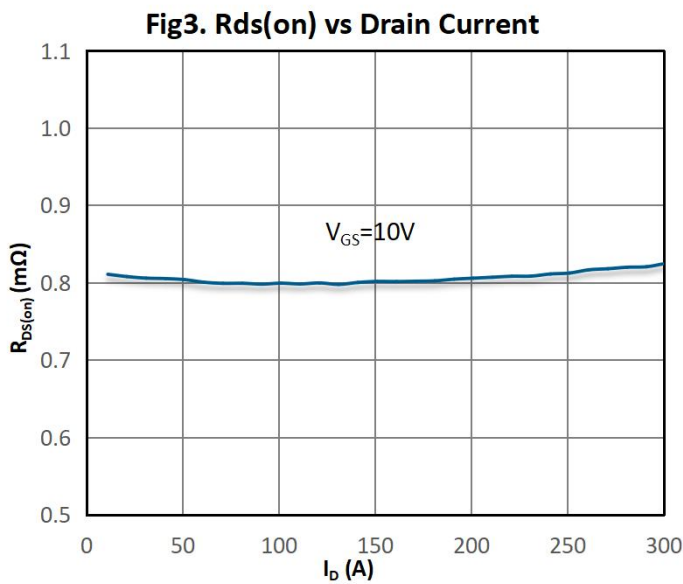
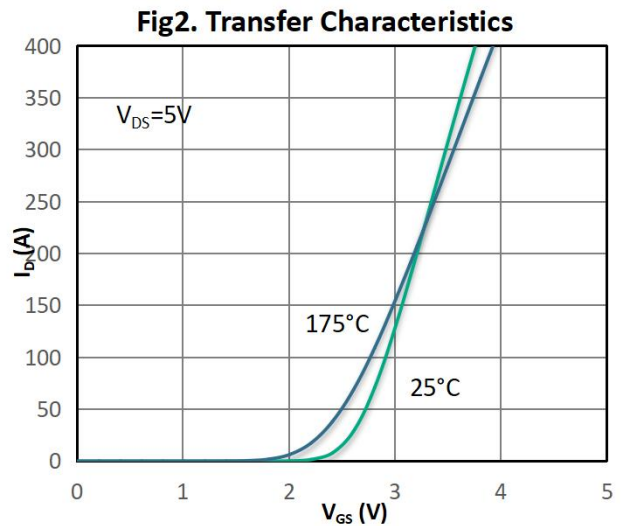
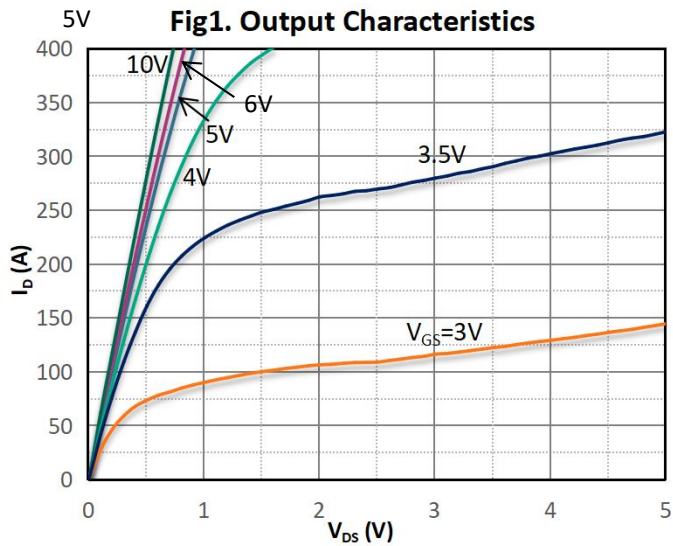
Dynamic Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Input Capacitance	C_{iss}	-	5275	-	pF	$V_{GS}=0V, V_{DS}=20V,$ $f=1MHz$
Output Capacitance	C_{oss}	-	2384	-		
Reverse Transfer Capacitance	C_{rss}	-	52	-		
Gate Total Charge	Q_G	-	71	-	nC	$V_{GS}=10V, V_{DS}=20V,$ $I_D=90A, f=1MHz$
Gate-Source charge	Q_{gs}	-	17	-		
Gate-Drain charge	Q_{gd}	-	7.3	-		
Turn-on delay time	$t_{d(on)}$	-	10	-	ns	$V_{GS}=10V, V_{DD}=20V,$ $R_{G\ ext}=3\Omega, I_D=90A$
Rise time	t_r	-	9	-		
Turn-off delay time	$t_{d(off)}$	-	72	-		
Fall time	t_f	-	60	-		
Gate resistance	R_G	-	3.0	-	Ω	$V_{GS}=0V, V_{DS}=0V,$ $f=1MHz$

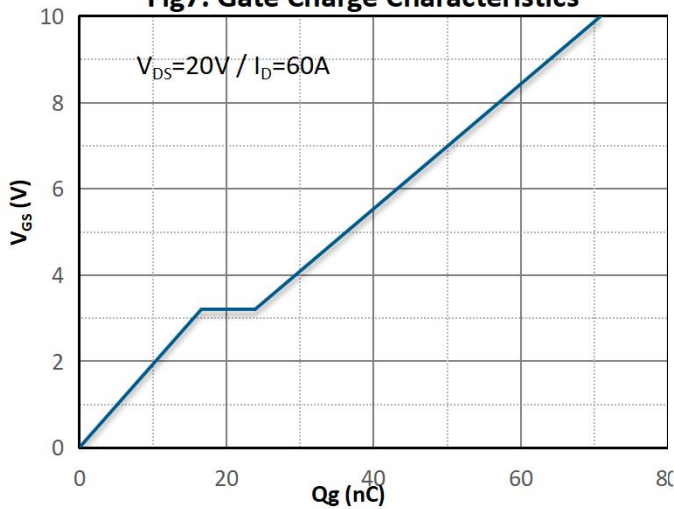
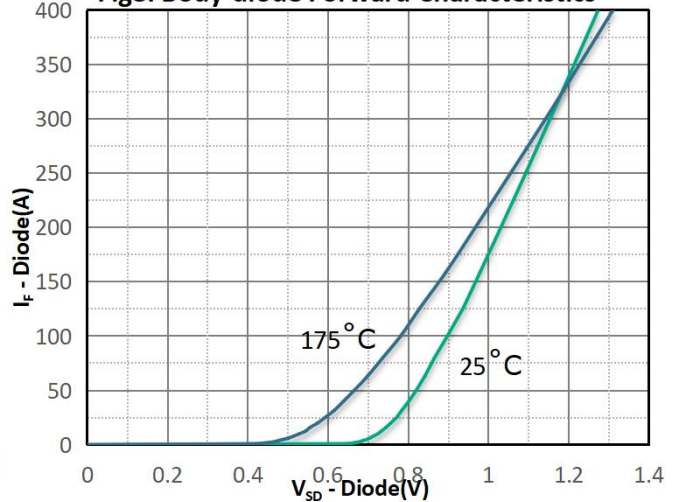
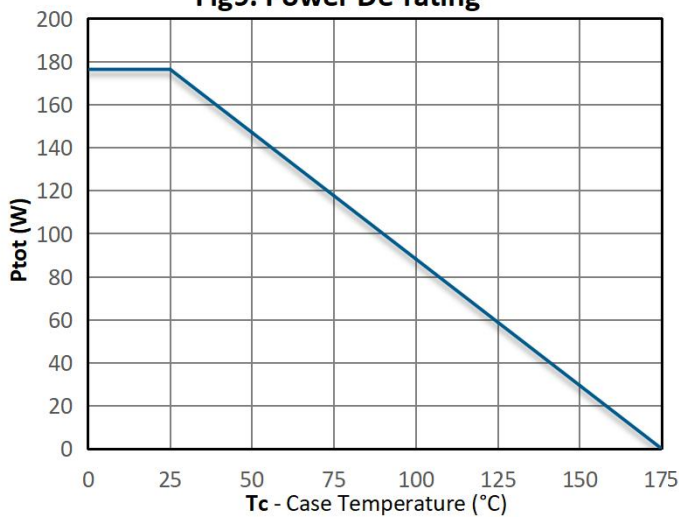
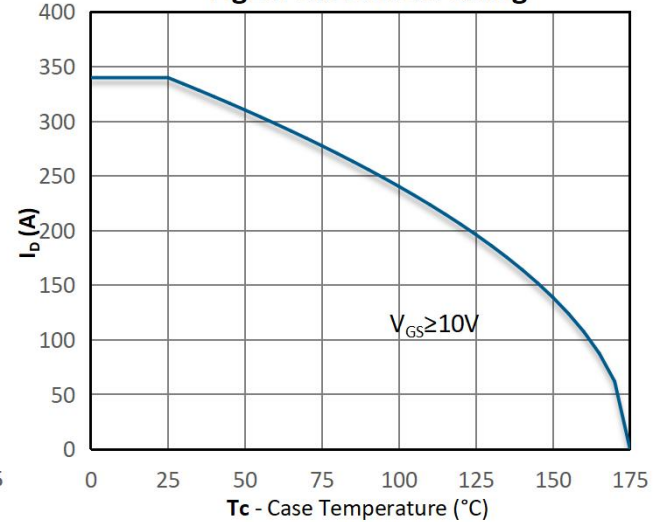
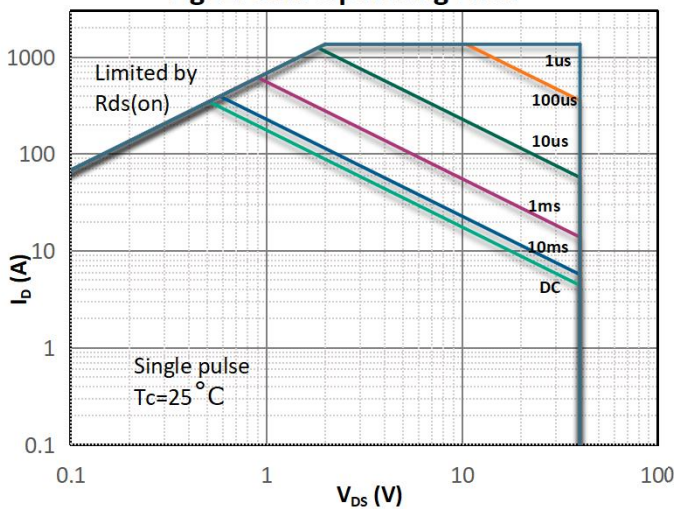
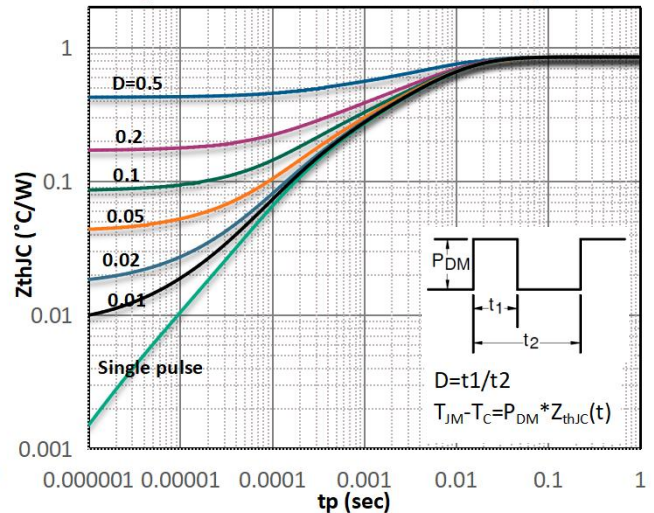
Body Diode Characteristic

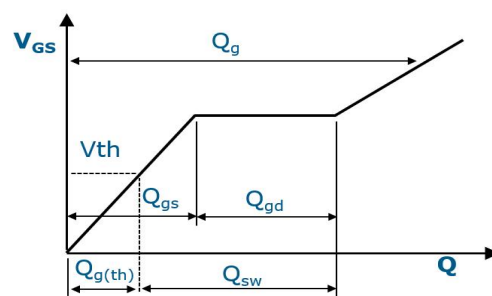
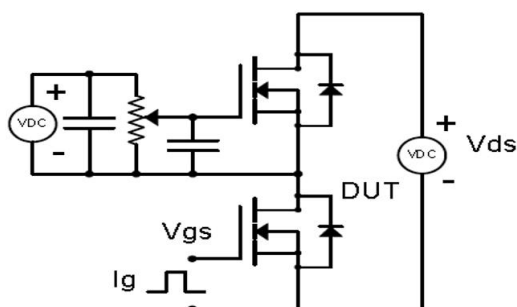
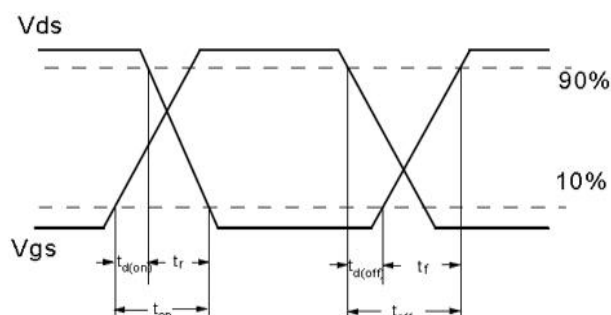
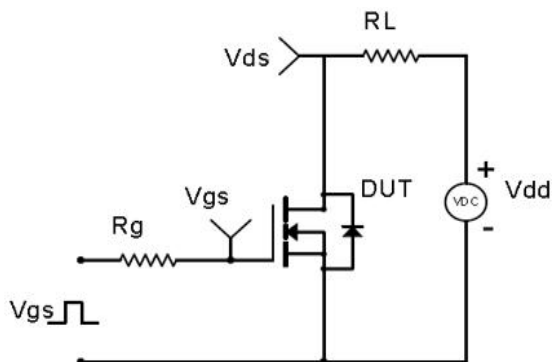
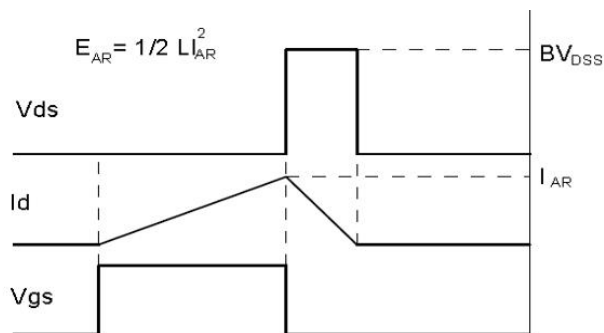
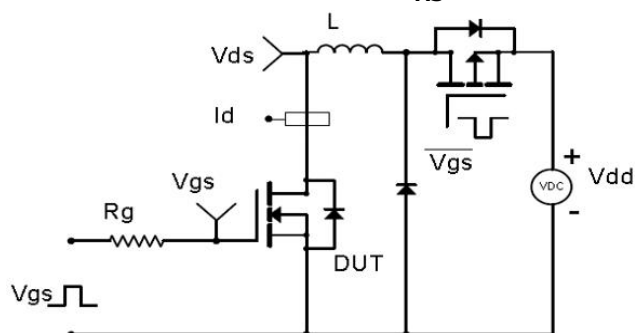
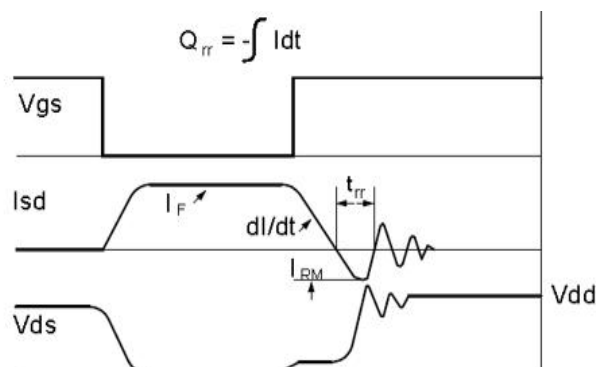
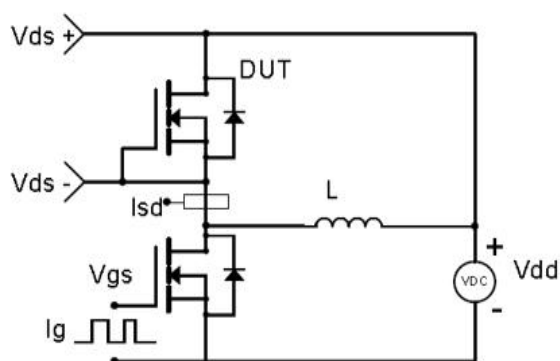
Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Diode Max Current	I_S		-	340	A	-
Diode Forward Voltage	V_{SD}	-	-	1.2	V	$V_{GS}=0V, I_{SD}=100A$
Diode Reverse Recovery Time	t_{rr}	-	143	-	ns	$I_F=90A, dI/dt=100A/\mu s$
Diode Reverse Recovery Charge	Q_{rr}	-	135	-	nC	

Typical Characteristics Diagram



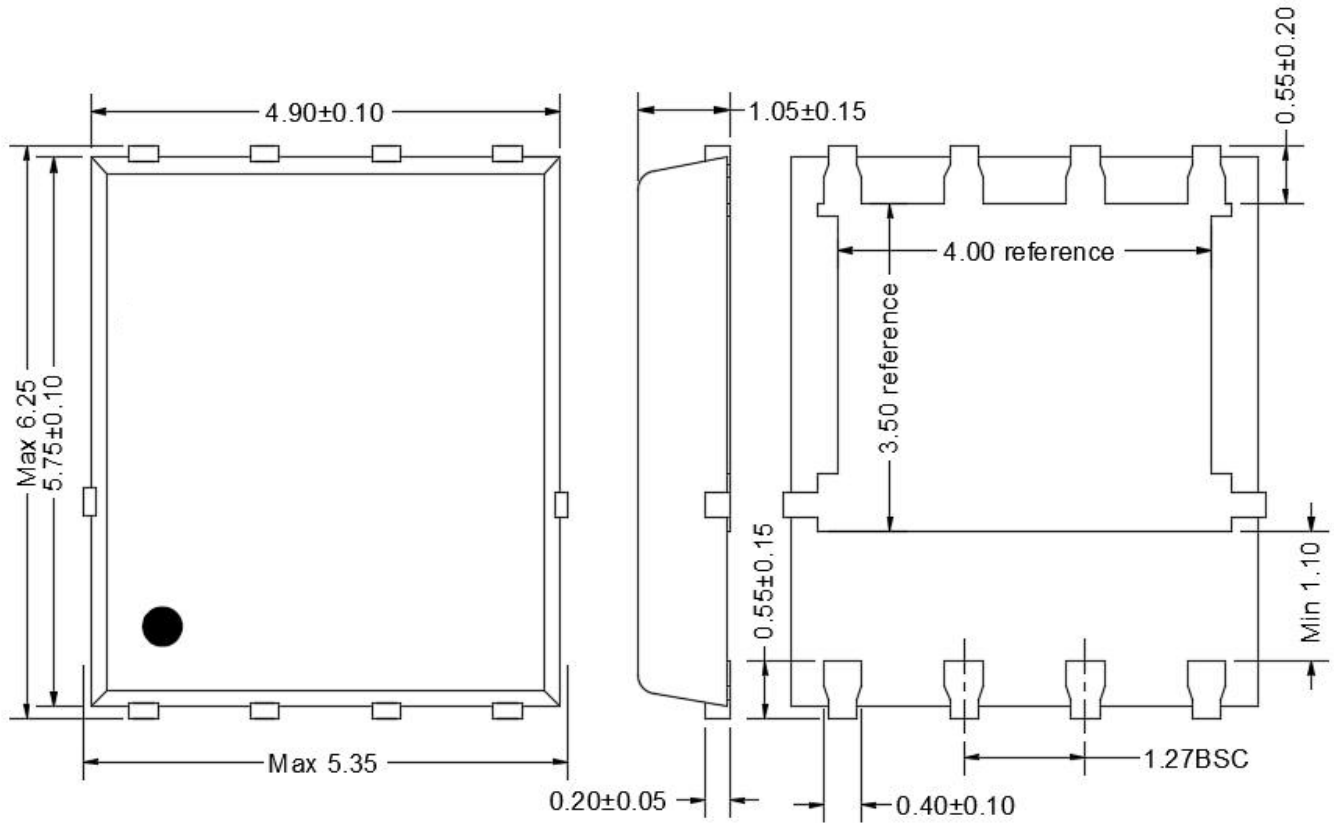
Typical Characteristics Diagram

Fig7. Gate Charge Characteristics

Fig8. Body-diode Forward Characteristics

Fig9. Power De-rating

Fig10. Current De-rating

Fig11. Safe Operating Area

Fig12. Max. Transient Thermal Impedance


Test Circuit & Waveform
Gate Charge Test Circuit & Waveform

MOSFET Switching Test Circuit & Waveform

 E_{AS} Test Circuit & Waveform

Diode Recovery Test Circuit & Waveform


Package Outline : DFN5*6-8

*Dimensions in mm



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